

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

***C. Petroleum, Oils, and Lubricants Storage Area/Defense Reutilization and Marketing Office
Yard Groundwater Operable Unit (Area of Contamination 32 and 43A)***

1. Overall Protection of Human Health and the Environment

This criterion, according to CERCLA, must be met for a remedial alternative to be chosen as a final site remedy. Alternatives C1, C2, and C3 will not directly treat, contain, destroy, or reduce the mobility of contaminants in the POL/DRMO groundwater area. Alternative C1 would not provide any additional protection above that which already exists in the current zoning, fencing, and land-use plans for the site. Alternative C2 would minimize the exposure routes to human and environmental receptors by isolating the area of contamination through development restrictions, thus reducing risks to acceptable levels. Alternative C3, in conjunction with institutional controls, will provide good data on contaminant degradation migration and the potential for human health risks outside the controlled area. All alternatives would involve some duration of groundwater monitoring to detect potential contaminant migration.

2. Compliance with Applicable or Relevant and Appropriate Requirements

CERCLA requires that the selected alternative also meet a second threshold criterion of compliance with ARARs or obtain a waiver if the criterion cannot be met. The ARARs for petroleum hydrocarbons would be exceeded in all alternatives except Alternative C3, where the groundwater would eventually comply with the ARARs. Institutional controls contained in Alternatives C2 and C3 would minimize exposure routes and thereby risks associated with the ARARs for TCE and methyl naphthalene.

3. Long-Term Effectiveness and Permanence

This criterion evaluates the magnitude of residual risk and the reliability of controls after response objectives have been met. Under Alternatives C1 and C2, the potential for human and ecological exposure to contaminants in groundwater endure. These alternatives do not satisfy the preference for treatment and permanence. Alternatives C2 and C3 require continued institutional controls. In the C3 alternative (microbial degradation process of monitored natural attenuation), the organic COPCs are converted ultimately to inert compounds such as carbon dioxide, methane, and water. Inorganic COPCs will continue to exist following completion of organic degradation but are thought to be of natural origin (except for sodium from road salt). Because of the actual degradation/destruction of organic contaminants that occurs in this process, intrinsic bioremediation provides permanent treatment effectiveness without secondary waste disposal. Alternative C3, if successful, would be a permanent and effective long-term remediation of the site. All alternatives would require monitoring well inspection.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

4. Reduction of Toxicity, Mobility, and Volume Through Treatment

This criterion evaluates whether the alternatives meet the statutory preference for treatment under CERCLA. The criterion evaluates the reduction of toxicity, mobility, or volume of contaminants and the type and quantity of treatment residuals. Alternatives C1, C2, and C3 do not involve treatment and would not reduce toxicity, mobility, or volume of contamination. Alternative C3 meets the statutory preference for treatment under CERCLA because monitored natural attenuation is a naturally occurring treatment. Monitoring, under all alternatives, would serve to verify reduction in contaminant migration. Alternative C3 proposes more intensive monitoring to determine whether the expected results are or are not attained.

5. Short-Term Effectiveness

CERCLA requires that potential adverse short-term effects to workers, the surrounding community, and the environment be considered during selection of a remedial action. No alternative will have any significant impact on existing site conditions. Under all alternatives, groundwater sampling would be performed in dermal and respiratory protection to minimize exposure risks.

6. Implementability

This criterion evaluates each alternative's ease of construction and operation and availability of services, equipment, and materials to construct and operate the alternative. None of the alternatives face any technical obstacles to implementation. However, Alternatives C1 and C2 would require waivers for the TCE and methyl naphthalene ARARs. Alternative C3 has the ultimate objective of meeting ARARs and poses no apparent administrative obstacles.

7. Cost

Capital, O&M, and present worth costs were estimated for Alternatives C1 through C3. Cost estimates for these alternatives included similar expenses for long-term groundwater monitoring. Alternatives C1 and C3 are the least and most expensive alternatives, respectively. The only alternative with capital costs is C3. These expenditures are designated for installing additional monitoring wells and creating and calibrating a site-specific flow and contaminant transport model. The O&M cost associated with Alternative C3 includes the potential adjustment of the site-specific model.

8. State Acceptance

This criterion addresses whether, based on its review of the RI/FS and proposed plan, the State concurs with, opposes, or has no comment on the alternative the Army is proposing as the remedy for the POL/DRMO groundwater operable unit (AOC 32 and 43A). The Commonwealth of Massachusetts has reviewed the RI/FS, proposed plan, and this ROD and concurs with the selected remedy (see section XIII).

9. Community Acceptance

This criterion addresses whether the public concurs with the Army's proposed plan. No comments were received from the community during the public comment period. The Army believes this shows the community's acceptance of the proposed plan and selected remedy.

X. THE SELECTED REMEDY

The selected remedy to address surface soil contamination at AOC 32 is Alternative A6. The selected remedies to address groundwater contamination at AOC 32 (UST #13) and AOCs 32 and 43A (POL/DRMO) are Alternatives B3 and C3, respectively. Each of these alternatives includes components for monitoring contaminant degradation and contaminant migration. The remedial components of the selected remedy are described in detail as follows.

A. Surface Soil Cleanup Levels (Defense Reutilization and Marketing Office Yard Soils Operable Unit — Area of Contamination 32)

Table 21 presents the main post soil cleanup goal determination. For all contaminants except PCBs, the values calculated from the risk assessment were used as candidate cleanup goals. For PCBs, an ARAR that existed from TSCA was selected as the cleanup goal. For any compounds not addressed by these two sources, the lower value of the USEPA Region III risk-based concentrations (RBCs) or the RCRA corrective action levels was selected as the candidate cleanup goal. If these values were below the background concentration, the background level was established as the cleanup goal.

At the DRMO Yard, several samples exceeded cleanup goals at the northern perimeter and on the surface of the asphalt yard. Lead was the most consistently-detected contaminant at levels up to 2,260 mg/kg. Cadmium was detected above cleanup goals in three samples, with a maximum of 78.0 mg/kg. PCBs were also widespread, with individual species up to 5.22 mg/kg in the soil and 9.3 mg/kg in asphalt samples. DDT and its degradation products, DDD and DDE, exceeded cleanup goals in two samples located in the northeast corner of the DRMO yard.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

Arsenic exceeded cleanup goals in two samples, but the concentrations were near the background range, and the conservative risk estimate of just above 10^{-5} is within the USEPA's acceptable range.

The total estimated volume of contaminated soil requiring remediation is approximately 1,300 cubic yards. Four areas require remediation: the southwestern portion of the tire storage area (500 cubic yards), the center portion of the East DRMO yard (330 cubic yards), the western drainage swale (220 cubic yards), and the eastern drainage swale (250 cubic yards). The depth of contamination in the four areas is estimated to be 1 foot.

B. Groundwater Cleanup Levels

Table 22 presents the main post groundwater cleanup goal determination. Where available, the most stringent of the ARARs was selected as a potential candidate cleanup goal. If no ARAR was available, the site-specific risk value was selected. If site-specific risk values were not established, then the most stringent of the USEPA Office of Drinking Water Health Advisories (HAs), USEPA Region III tap water criteria, or the MADEP Office of Research and Standards Guidance (ORSG) for chemicals for which Massachusetts MCLs (MMCLs) have not been promulgated was selected. If measured concentrations were below background levels, the background concentration was established as the candidate cleanup goal. For inorganic contaminants, data from filtered samples were used to develop cleanup goals. Risk based clean-up levels will be established for extractable petroleum hydrocarbons/volatile petroleum hydrocarbons (EPH/VPH) during the "Monitored Natural Attenuation Remediation Assessment."

1. Underground Storage Tank #13 Groundwater Operable Unit (Area of Contamination 32)

COPCs in the source area groundwater exceeded several Federal and State drinking water standards. In the source area groundwater, the following COPCs were detected at concentrations above a Federal or State standard: 1,2-, 1,3-, and 1,4-dichlorobenzene; Aroclor 1260; DDT; 1,2-dichloroethylene (DCE); and TCE. In addition, benzene was detected just below the MCL. This plume has not migrated far because it is present in a low permeability bedrock aquifer that has a very low hydraulic gradient.

Although bis(2-ethylhexyl)phthalate was detected in one well at approximately seven times the groundwater standard, contamination is believed to be due to sample handling.

Dissolved metals, including arsenic and iron, exceeded groundwater standards. The arsenic contamination is associated with the former UST activities but does not appear to have migrated off site. Iron does not pose a risk to human health. Metals therefore were not considered for remediation.

2. Petroleum, Oils, and Lubricants Storage Area/Defense Reutilization and Marketing Office Yard Groundwater Operable Unit (Area of Contaminations 32 and 43A)

Three wells at the POL Storage Area exceeded cleanup levels for dissolved aluminum, iron, and sodium. The first two metals are considered to be naturally occurring. The source of sodium is the winter salting of the roadway, which is ongoing and not subject to regulation. One thallium sample ($1 \mu\text{g/L}$) exceeded the cleanup goal ($0.5 \mu\text{g/L}$). These metals were not slated for remediation.

Two wells in the center of the POL area had 1,3,5-trinitrobenzene (TNB) concentrations of 2.18 and $3.03 \mu\text{g/L}$, above the TBC-based cleanup goal of $1.8 \mu\text{g/L}$. One downgradient well exceeded the TBC-based cleanup goal for 1,3-dinitrobenzene (DNB) and showed extremely elevated chloride concentrations (600 to 800 mg/L). DDT and BHC also exceeded cleanup goals in the same well. The contamination in this well does not appear to be from the POL site.

Two wells upgradient of the DRMO Yard had dissolved manganese concentrations of 7,000 and $7,700 \mu\text{g/L}$. Three wells located between the DRMO Yard and POL area contained low levels of TCE. Only well POL-3 exceeded cleanup goals for TCE ($5 \mu\text{g/L}$) at concentrations of 15 to $19 \mu\text{g/L}$. Although it is apparent that the contamination came from the DRMO Yard, there is no apparent continuing source, nor does it appear that TCE is migrating downgradient. The levels of contamination are only slightly above MCLs, but the extent of contamination has not been established.

C. Description of Remedial Components

1. Defense Reutilization and Marketing Office Yard Soils Operable Unit (Area of Contamination 32)

Alternative A6: Excavation and Offsite Disposal

Under Alternative A6, all soil identified as being contaminated would be excavated and disposed of off site in a nonhazardous industrial landfill. Because of the absence of RCRA hazardous wastes (listed or characteristic) and the relatively low concentrations of PCBs (less than 50 mg/kg), the soil does not need to go to a RCRA- or TSCA-regulated landfill. If hazardous waste is found, RCRA Subtitle C will apply, and the waste will be properly disposed. Backfilling may not be required because the contaminated soils are mostly surficial. Regrading may be sufficient for handling any of the deeper areas of excavation and for generally smoothing out the excavated area. This alternative would not treat or destroy the contaminants, but would completely remove them from the site. All three RAOs would be achieved permanently. Therefore, this alternative would provide complete protection of human health and the environment. Key components of this alternative include the following:

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

- Excavate the contaminated waste (1,300 cubic yards). Perform onfirmatory sampling prior to backfilling.
- Transport the waste immediately to a final off-site disposal location (nonhazardous landfill).
- Backfill the area with clean material and revegetate.
- Monitor groundwater and review the site after 5 years.

Each of these components is described in the following paragraphs.

Excavate Contaminated Waste. The contaminated soils are currently found in four areas: the southern portion of the tire storage area, adjacent to the northern border of the DRMO Yard, the center of the East Yard, the drainage swale along the western edge of the yard, and the drainage swale along the eastern edge of the yard. Based on an interpretation of the soil sampling data collected during the RI, approximately 1,300 cubic yards of soil need to be excavated. Since the contaminated material is not located in a vegetated area, clearing and grubbing would not be required. Contaminated soils and the asphalt, located in the center portion of the East Yard, would be excavated using conventional earth-moving equipment such as backhoes, bulldozers, and dump trucks. The asphalt would have to be broken into pieces small enough for handling. Level C PPE would be required for site workers to prevent inhalation, ingestion, and dermal exposure routes. Dust control measures would be employed.

During excavation, verification sampling would be required to ensure that cleanup goals were achieved. This verification would involve collecting soil samples from the bottom and edges of the excavation areas and analyzing the samples for site-specific cleanup goal parameters (PCBs, pesticides, lead, and cadmium). If sample results exceed cleanup goals, then additional soil would be excavated and the excavation resampled. If results were acceptable, the excavation for that area would be considered to be complete and the area would be prepared for backfilling. As the material would be removed from the site immediately, a staging area would not be necessary.

The southern portion of the east DRMO Yard could be used as a decontamination pad for the excavation equipment. Wastewater generated from decontamination procedures would be contained, treated, and disposed of, if necessary.

Transport the Waste Immediately to a Final Off-site Disposal Location. The excavated soil would undergo toxicity characteristic leaching procedure (TCLP) testing for lead and cadmium. If the material failed the TCLP, it would be transported to an offsite, RCRA-regulated landfill. If the material passed the TCLP, it would be transported to a nonhazardous industrial landfill for final disposal.

Backfill the Area with Clean Material and Revegetate. If verification sample results are acceptable, the excavation for that area would be considered to be complete and the area would

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

be prepared for backfilling. The excavated areas would be regraded or backfilled to grade with clean soils and revegetated for stabilization.

Monitor Groundwater and Review the Site After 5 Years. Because the source of contamination would be removed, no long-term monitoring would be required. However, a review of site conditions, including groundwater monitoring, would be conducted in 5 years to ensure that no contaminants continue to migrate from unidentified sources. Appropriate action would be considered at that time.

2. Underground Storage Tank #13 Groundwater Operable Unit (Area of Contamination 32)

Alternative B3: Monitored Natural Attenuation

The monitored natural attenuation approach relies on natural attenuation to remediate contaminants in the subsurface. Because it relies on slow, natural processes and involves long-term monitoring to observe the gradual, natural restoration of the site to precontamination conditions, it necessarily involves institutional action. The Army will follow the *Technical Protocol for Implementing Intrinsic Remediation with Long-Term Monitoring for Natural Attenuation of Fuel Contamination Dissolved in Groundwater*. This document was codeveloped by the USEPA and the Air Force Center for Environmental Excellence and published on November 11, 1995. During the period of restoration, access to the site for some uses, such as water supply, would be restricted, since the groundwater contaminant levels exceed ARARs. Monitored natural attenuation is differentiated from institutional action by the degree of site characterization, modeling of the groundwater flow and contaminant migration, and the long-term monitoring effort to ensure that natural attenuation is working. Key components of this alternative are as follows:

- Establish institutional controls to prevent intrusion into or installation of wells into the known area of contamination in the bedrock.
- Allow for monitored natural attenuation by naturally occurring microorganisms in the groundwater within the bedrock.
- Install additional groundwater monitoring wells.
- Collect and incorporate additional field data into groundwater flow and contaminant transport models.
- Monitor groundwater over the longterm and annually report on groundwater quality.
- Review field data, modeling predictions, and compliance with ARARs at 5-year intervals.
- Review the need for continued monitoring and additional action at 5-year intervals.

Each of these components is described in the following paragraphs.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

Establish Institutional Controls. Deed restrictions would limit land use and development. The land would be limited to restricted development, including a ban on drinking water well installation. The land is currently slated for industrial use by the Massachusetts Government Land Bank (November 1996 Devens Reuse Plan), which will control development upon the Army's release of the property. Therefore, no further zoning alterations would be required.

Allow for Monitored Natural Attenuation. Naturally occurring bioremediation is expected to reduce the compounds present in the bedrock beneath the site to protoplasm, carbon dioxide, water, and chlorides by a combination of physical, chemical, and biological processes that act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater in a reasonable timeframe (maximum 30-years). These insitu processes include biodegradation, dispersion, dilution, adsorption, volatilization, and biological and chemical stabilization or destruction of contaminants.

Install Additional Groundwater Monitoring Wells. Additional groundwater monitoring wells will be required to improve data collection coverage within the source area, as well as downgradient of the site. The ultimate number and location of additional wells selected for long-term groundwater monitoring will depend on the results of the fate and transport modeling. A long-term monitoring plan would be developed as part of the monitored natural attenuation remediation assessment and would undergo regulatory review. These wells would be used to monitor contaminant plume location and concentration in relation to the AOC boundary and to collect intrinsic degradation indicators. To estimate costs for this alternative, it was estimated that three additional shallow wells would be necessary.

Collect and Incorporate Additional Field Data into Groundwater Models. Prior to refining a long-term groundwater monitoring plan, additional data collection and modeling may be required. Data collection may consist of installing additional monitoring wells and performing additional rounds of groundwater sampling and analysis to refine estimates of monitored natural attenuation effectiveness in protecting downgradient receptors. A monitored natural attenuation assessment work plan would be developed and provided for regulatory review. Data collected would include groundwater elevation, monitored natural attenuation indicators, and relevant COPCs, including TPHC by MADEP method for EPH and VPH. Monitored natural attenuation indicator data would be used to provide additional evidence that monitored natural attenuation is occurring and to determine future intrinsic bioremediation potential. Relevant COPC concentration data, including VPH/EPH via MADEP methods would directly assist in estimating site-specific degradation rates and the effectiveness of monitored natural attenuation in achieving groundwater cleanup goals.

Monitor Groundwater Over the Longterm and Annually Report on Groundwater Quality. Long-term groundwater monitoring is proposed to assess the monitored natural attenuation progress and detect any potential migration of contaminants that exceed groundwater cleanup levels. Groundwater monitoring would be conducted annually for 30 years or until groundwater contamination has been reduced to acceptable levels.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

If the monitored natural attenuation assessment results at AOC 43A indicate that the groundwater contaminant plume can not be remediated within 30 years, an additional clean-up action will be evaluated and implemented as appropriate. If at any time during the monitored natural attenuation there is an indication that the contaminants are migrating into the currently established Zone II boundary or an area located sufficiently inside the boundary in which compliance will be determined, according to clean-up criteria stated in the Record of Decision, that a minimum will meet drinking water standards; then the Army will implement an additional remedial action which will be protective of human health and the environment.

The point of compliance for this site shall be the currently established groundwater Zone II boundary. Monitoring points shall be established at areas sufficiently inside the boundary to provide adequate time to evaluate the need for more aggressive actions to protect human health and the environment. Specific details will be provided in the Monitored Natural Attenuation Assessment Work Plan to be submitted after ROD finalization.

The Army may request a reduction in the frequency of groundwater monitoring if warranted by site conditions. Annual monitoring would be required unless USEPA and MADEP agree to a reduced frequency. A long term groundwater monitoring plan would be developed by the Army and provided for regulatory review. Likely analytical parameters for the monitored natural attenuation assessment are provided in table 23, appendix E. Annual reports would be submitted to USEPA and MADEP and would include a description of site activities, a summary of the long-term groundwater monitoring program results, and any modeling updates.

Review Field Data, Modeling Predictions, and Compliance with ARARs at 5-Year Intervals. Under CERCLA § 121(c) (42 USC 9621), any remedial action that results in contaminants remaining on-site must be reviewed at least every 5 years. During 5-year reviews, the existing data, monitoring program, and model predictions are evaluated and modified, as necessary. Whether the implemented remedy continues to be protective of human health and the environment or if the implementation of additional remedial action is appropriate are assessed.

The 5-year review would evaluate the alternative's effectiveness (compliance with ARARs) at reducing potential human health risk from exposure to groundwater on-site and downgradient, considering current and potential future receptors. This evaluation would be based on how successful the alternative is at attaining groundwater cleanup levels at the long-term monitoring wells.

Review the Need for Continued Monitoring and Additional Action at 5-year Intervals. Details were provided in the previous subsection and will not be repeated here.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

3. Petroleum, Oils, and Lubricants Storage Area/Defense Reutilization and Marketing Office Yard Groundwater Operable Unit (Area of Contaminations 32 and 43A)

Alternative C3: Monitored Natural Attenuation

The monitored natural attenuation approach relies on natural attenuation to remediate contaminants in the subsurface. Because it relies on slow, natural processes and involves long-term monitoring to observe the gradual natural restoration of the site to precontamination conditions, it necessarily involves institutional action. During the period of restoration, access to the site for some uses, such as water supply, would be restricted, since the groundwater contaminant levels exceed ARARs. Monitored natural attenuation is differentiated from institutional action by the degree of site characterization, modeling of the groundwater flow and contaminant migration, and the long-term monitoring effort to ensure that natural attenuation is working. Key components of this alternative are as follows:

- Establish institutional controls to prevent intrusion into or installation of wells into the known area of contamination.
- Allow for monitored natural attenuation by naturally occurring microorganisms in the groundwater.
- Install additional groundwater monitoring wells.
- Collect and incorporate additional field data into groundwater flow and contaminant transport models.
- Monitor groundwater over the longterm and annually report on groundwater quality.
- Review field data, modeling predictions, and compliance with ARARs at 5-year intervals.
- Review of the need for continued monitoring and additional action at 5-year intervals.

Each of these components is described in the following paragraphs.

Establish Institutional Controls. Deed restrictions would limit land use and development. The land would be limited to restricted development, including a ban on drinking water well installation. The land is currently slated for rail, industrial, and trade-related uses by the Massachusetts Government Land Bank (November 1996 Devens Reuse Plan), which will control development upon Army release of the property. Therefore, no further zoning alterations would be required.

Allow for Monitored Natural Attenuation. Naturally occurring bioremediation is expected to reduce the compounds beneath the site to carbon dioxide, water, and chlorides, by reductive dechlorination and metabolism of nonchlorinated contaminants concentration in a reasonable timeframe (maximum 30-years).

Install Additional Groundwater Monitoring Wells. Additional groundwater monitoring wells will be required to improve data collection coverage within the source area, as well as downgradient of the site. The ultimate number and location of additional long-term groundwater monitoring

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

wells will depend on the results of the fate and transport modeling. These wells would be used to monitor contaminant plume location and concentration in relation to the AOC boundary and to collect intrinsic degradation indicators. To estimate the costs for this alternative, it was estimated that three additional shallow wells would be necessary.

Collect and Incorporate Additional Field Data into Groundwater Models. Prior to installing additional long-term groundwater monitoring wells and refining a long-term groundwater monitoring plan, additional data collection and modeling may be required. Data collection may consist of installing bedrock wells and performing an additional round of groundwater sampling and analysis to refine estimates of monitored natural attenuation effectiveness in protecting downgradient receptors. Data collected would include groundwater elevation, monitored natural attenuation indicators, and relevant COPCs. Monitored natural attenuation indicator data will be used to provide additional evidence that monitored natural attenuation is occurring and to determine future intrinsic bioremediation potential. Relevant COPC concentration data will directly assist in estimating site-specific degradation rates and the effectiveness of monitored natural attenuation in achieving groundwater cleanup goals.

Monitor Groundwater Over the Longterm and Annually Report on Groundwater Quality. Long-term groundwater monitoring is proposed to assess the progress monitored natural attenuation and detect any potential migration of contaminants that exceed groundwater cleanup levels. Depending on the results of the fate and transport modeling, groundwater monitoring would be conducted on an annual basis and reviewed under the site review for any necessary modifications.

If the monitored natural attenuation assessment results at AOC 32 and 43A indicate that the groundwater contaminant plume can not be remediated within 30 years, an additional clean-up action will be evaluated and implemented as appropriate. If at any time during the monitored natural attenuation there is an indication that the contaminants are migrating into the currently established Zone II boundary or an area located sufficiently inside the boundary in which compliance will be determined, according to clean-up criteria stated in the Record of Decision, that a minimum will meet drinking water standards; then the Army will implement an additional remedial action which will be protective of human health and the environment.

The point of compliance for this site shall be the currently established groundwater Zone II boundary. Monitoring points shall be established at areas sufficiently inside the boundary to provide adequate time to evaluate the need for more aggressive actions to protect human health and the environment. Specific details will be provided in the Monitored Natural Attenuation Assessment Work Plan to be submitted after ROD finalization.

Annual reports would be submitted to USEPA and MADEP and would include a description of site activities, a summary of the long-term groundwater monitoring program results, and any modeling updates.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

Review Field Data, Modeling Predictions and Compliance with ARARs at 5-Year Intervals. Under CERCLA § 121(c) (42 USC 9621), any remedial action that results in contaminants remaining on-site must be reviewed at least every 5 years. During 5-year reviews, the existing data, monitoring program, and model predictions are evaluated and modified, as necessary. Whether the implemented remedy continues to be protective of human health and the environment or if the implementation of additional remedial action is appropriate are assessed.

The 5-year review would evaluate the alternative's effectiveness (compliance with ARARs) at reducing potential human health risk from exposure to groundwater on-site and downgradient, considering current and potential future receptors. This evaluation would be based on how successful the alternative is at attaining groundwater cleanup levels at the long-term monitoring wells.

Review the Need for Continued Monitoring and Additional Action at 5-year Intervals. Details were provided in the previous subsection and will not be repeated here.

XI. STATUTORY DETERMINATIONS

The selected remedies for DRMO Soils Operable Unit (AOC 32), UST #13 Groundwater Operable Unit (AOC 32), and POL Storage Area/DRMO Yard Groundwater Operable Unit (AOCs 32 and 43A) (Alternative A6, Alternative B3, and Alternative C3, respectively) are consistent with CERCLA and, to the extent practicable, the NCP. The selected remedies are protective of human health and the environment, attain ARARs, and are cost-effective. The remedies use permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

A. The Selected Remedy is Protective of Human Health and the Environment

The alternatives chosen for AOC 32 and 43A will permanently reduce the risks to human health and the environment by eliminating, reducing, or controlling exposures to human and environmental receptors through engineering and institutional controls. The principal soil threat at AOC 32 is exposure of site workers to contaminated soil. The contaminated soil will be removed and disposed of off-site. The principal groundwater threat at AOC 32 and 43A is potential consumption of unfiltered contaminated groundwater. The reuse of these portions of Devens will be controlled by zoning and deed restrictions, which would prevent the use of groundwater from the contaminated aquifer, resulting in reduced potential for exposure.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

B. The Selected Remedy Attains Applicable or Relevant and Appropriate Requirements

The selected remedies will attain all applicable or relevant and appropriate Federal and State requirements. No waivers are required. ARARs for the selected remedial alternatives were identified and discussed in the final FS (sections 2 and 5). Environmental laws from which ARARs for the selected remedial action are derived and specific ARARs are summarized in table 24 and 25, appendix E.

C. The Selected Remedy is Cost-Effective

In the Army's judgment, the selected remedies are cost-effective (i.e., the remedies afford overall effectiveness proportional to costs). In selecting these remedies, once the Army identified alternatives that protect human health and the environment and that attain ARARs, the Army evaluated the overall effectiveness of each alternative according to a combination of the relevant criteria: long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness. The relationship of the overall effectiveness of these remedial alternatives was determined to be proportional to costs.

The costs of the selected remedy, Alternative A6, for soils at AOC 32 in 1996 dollars are as follows:

Estimated Capital Cost:	\$543,696
Estimated O&M Cost:	\$19,850
Estimated Total Cost:	\$563,550

Estimated Time for Restoration:	Approximately 5 months for engineering evaluations, design, excavation, and disposal
---------------------------------	--

The costs of the selected remedy, Alternative B, for groundwater at AOC 32 (UST #13) in 1996 dollars are as follows:

Estimated Capital Cost:	\$0
Estimated O&M Cost:	\$170,910
Estimated Total Cost:	\$170,910

Estimated Time for Restoration:	Approximately 12 months for engineering evaluations, design, and construction
---------------------------------	---

The costs of the selected remedy, Alternative C3, for groundwater at AOCs 32 and 43A (POL Storage Area/DRMO Yard) in 1996 dollars are as follows:

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

Estimated Capital Cost:	\$0
Estimated O&M Cost:	\$258,870
Estimated Total Cost:	\$258,870

Estimated Time for Restoration:	Approximately 12 months for engineering evaluations, design, and construction
---------------------------------	---

D. The Selected Remedy Uses Permanent Solutions and Alternative Treatment or Resource Recovery Technologies to the Maximum Extent Practicable.

Once the Army identified those alternatives that attain ARARs and that are protective of human health and the environment, the Army determined which alternative made use of permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. This determination was made by deciding which one of the identified alternatives provided the best balance of trade-offs among alternatives in terms of (1) long-term effectiveness and permanence; (2) reduction of toxicity, mobility, and volume through treatment; (3) short-term effectiveness; (4) implementability; and (5) cost. The balancing test emphasized long-term effectiveness and permanence and the reduction of toxicity, mobility, and volume through treatment and considered the preference for treatment as a principal element, the bias against off-site land disposal of untreated waste, and community and State acceptance. The selected remedies provided the best balance of trade-offs among the alternatives.

1. Defense Reutilization and Marketing Office Yard Soils Operable Unit (AOC 32)

Alternative A1 would not provide any additional protection above that which already exists. Alternatives A2, A3, and A4 minimize the exposure routes, thus reducing risks to acceptable levels. Alternative A6 eliminates contamination at the site.

The PCB ARAR would be exceeded in all alternatives except Alternatives A6 and possibly A4. Alternatives A2 and A3 would minimize risks for the TSCA ARAR for PCBs, the RCRA action levels for pesticides and cadmium, and the cleanup goals for lead. Also, Alternatives A1, A2, and A3 would eliminate the RCRA action-specific ARAR.

Alternatives A1, A2, A3, and A4 require continued institutional controls. Alternatives A1 and A2 require continued control of access to the DRMO yard. Alternative A3 and A4 require extended maintenance of the site. Alternative A6 is effective in the longterm, as the burden of responsibility shifts to the off-site landfill operator to ensure that the landfill integrity is upheld.

Alternatives A1 and A2 do not involve treatment and would not reduce toxicity, mobility, or volume of contamination. Alternatives A3 and A6 would not provide a reduction in toxicity or volume, but would reduce the mobility of contamination. Of these two, Alternative 6 would be

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

more effective in this reduction. Neither Alternative A3 or A6 satisfies the preference for onsite treatment. Alternative A4 is the only option that would satisfy the regulatory preference for on-site treatment. Alternative A4 would reduce the toxicity of lead and cadmium contamination, but would only affect (dramatically reduce) the mobility of PCBs and pesticides. This alternative would probably increase the volume of the wastes.

Alternatives A1 and A2 would have little or no short-term impact. Alternatives A3, A4, and A6 would involve extensive short-term site disturbance.

2. Underground Storage Tank #13 Groundwater Operable Unit (Area of Contamination 32)

Alternatives B1 and B2 do not involve any remedial action, and no relevant ARARs would be satisfied. Alternative B3 provides for better safeguards in that the distribution of contaminants is more extensively characterized and monitored. It ensures that the site eventually complies with ARARs. Both Alternatives B2 and B3 require institutional controls. Only Alternative B3 meets the statutory preference for treatment because monitored natural attenuation is a naturally occurring treatment.

3. POL Storage Area/DRMO Yard Groundwater Operable Unit (AOCs 32 and 43A)

Alternatives C1 and C2 do not involve any remedial action, and no relevant ARARs would be satisfied. Alternative C3 provides for better safeguards in that the distribution of contaminants is more extensively characterized and monitored. It ensures that the site eventually complies with ARARs. Both Alternatives C2 and C3 require institutional controls. Only Alternative C3 meets the statutory preference for treatment because monitored natural attenuation is a naturally occurring treatment.

XII. DOCUMENTATION OF NO SIGNIFICANT CHANGES

The Army presented a proposed plan (preferred alternative) for remediation of soil contamination at AOC 32 and groundwater contamination at AOCs 32 and 43A at a public meeting held on July 17, 1997.

The components of the preferred alternative (at DRMO Soils Operable Unit AOC 32, Alternative A6: Excavation and Off-site Disposal) include the following:

- Excavate the contaminated waste (1,300 cubic yards). Perform confirmatory sampling prior to backfilling.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

- Transport the waste immediately to a final off-site disposal location (nonhazardous landfill).
- Backfill the area with clean material and revegetate.
- Monitor groundwater and review the site after 5 years.

The components of the preferred alternative at UST #13 Groundwater Operable Unit (AOC 32) (Alternative B3: Monitored Natural Attenuation) and at POL Storage Area/DRMO Yard (AOCs 32 and 43A) (Alternative C3: Monitored Natural Attenuation) include the following:

- Establish institutional controls to prevent intrusion into or installation of wells into the known area of contamination in the bedrock.
- Allow for monitored natural attenuation by naturally occurring microorganisms in the groundwater within the bedrock.
- Install additional groundwater monitoring wells.
- Collect and incorporate additional field data into groundwater flow and contaminant transport models.
- Monitor groundwater over the longterm and annually reports on groundwater quality.
- Review field data, modeling predictions, and compliance with ARARs at 5-year intervals.
- Review of the need for continued monitoring and additional action at 5-year intervals.

No changes or additions have been made to any alternative since the publication of the proposed plan.

XIII. STATE ROLE

The Commonwealth of Massachusetts has reviewed the alternatives presented in the FS and proposed plan and concurs with the selected remedy for the cleanup of the soil and groundwater contamination at AOCs 32 and 43A. The Commonwealth has also reviewed the RI/FS to determine if the selected remedy complies with applicable or relevant and appropriate laws and regulations of the Commonwealth. A copy of the declaration of concurrence is attached as appendix B.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

APPENDIX A — ADMINISTRATIVE RECORD INDEX

This page intentionally left blank.

ADMINISTRATIVE RECORD INDEX
AOCs 32 & 43A

1.0 PRE-REMEDIAL

1.0 Pre-Remedial

Reports

1. Final Basewide Environmental Basewide Survey (EBS) for Proposed Lease and/or Transfer, Fort Devens - Basewide, Arthur D. Little, Inc., (December, 1995). Filed in Group 1A.

Comments

1. Comments dated February 2, 1996 from D. Lynne Welsh, MADEP on the December, 1995 "Final Basewide Environmental Basewide Survey (EBS) for Proposed Lease and/or Transfer, Fort Devens - Basewide," Arthur D. Little, Inc. Filed in Group 1A.

1.2 Preliminary Assessment

Reports

1. Final Master Environmental Plan for Fort Devens, Argonne National Laboratory, (April, 1992). Filed in Group 1A.
2. Preliminary Zone II Analysis for the Production Wells at Fort Devens, MA, Draft Report, Engineering Technologies Associates, Inc., (January, 1994). Filed in Group 1A.

Comments

1. Comments dated May, 1992 from Walter Rolf, Montachusett Regional Planning Commission on the April, 1992 "Final Master Environmental Plan for Fort Devens," Argonne National Laboratory. Filed in Group 1A.
2. Comments dated May 7, 1992 from James P. Byrne, USEPA Region I on the April, 1992 "Final Master Environmental Plan for Fort Devens," Argonne National Laboratory. Filed in Group 1A.
3. Comments dated May 23, 1994 from D. Lynne Welsh, MADEP on the January, 1994 "Preliminary Zone II Analysis for the Production Wells at Fort Devens, MA, Draft Report," Engineering Technologies Associates, Inc. Filed in Group 1A.

Responses to Comments

1. Responses dated June 29, 1992 from Carrol J. Howard, Fort Devens to the comments on the April, 1992 "Final Master Environmental Plan for Fort Devens," Argonne National Laboratory. Filed in Group 1A.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

1.3 Site Inspection

Work Plans

1. Final Quality Assurance Project Plan, Ecology and Environment, Inc., (November, 1991). Filed in Group 1B.
2. Final Health and Safety Plan, Ecology and Environment, Inc., (November, 1991). Filed in Group 1A.
3. Final Work Plan and Field Sampling Plan, Ecology and Environment, Inc., (February, 1992). Filed in Group 1B.
4. Final Task Order (Site Investigations) Work Plan - Historic Gas Stations, ABB Environmental Services, Inc., (December, 1992). Filed in Group 2&7.

Reports

1. Final Site Investigations Report, Ecology and Environment, Inc., (December, 1992). Filed in Group 1B.
2. Final SI Report, Groups 2 & 7 and Historic Gas Stations, Volume I - IV, ABB Environmental Services, Inc., (May, 1993). Filed in Group 2&7.
3. Revised Final Site Investigation Report, Groups 2 & 7 and Historic Gas Stations, Volumes I, II, III and IV, ABB Environmental Services, Inc., (October, 1995). Filed in Group 2&7.

Comments

1. Comments dated March 19, 1992 from James P. Byrne, USEPA Region I on the February, 1992 "Final Work Plan and Field Sampling Plan," Ecology and Environment, Inc. Filed in Group 1B.
2. Comments dated March 19, 1992 from James P. Byrne, USEPA Region I on the November, 1991 "Final Quality Assurance Project Plan," Ecology and Environment, Inc. Filed in Group 1B.
3. Comments dated March 19, 1992 from James P. Byrne, USEPA Region I on the November, 1991 "Final Health and Safety Plan," Ecology and Environment, Inc. Filed in Group 1B.
4. Comments dated January 12, 1993 from James P. Byrne, USEPA Region I on the December, 1992 "Final Site Investigations Report," Ecology and Environment, Inc. Filed in Group 1B.
5. Comments dated January 12, 1993 from James P. Byrne, USEPA Region I on the December, 1992 "Final Task Order (Site Investigations) Work Plan - Historic Gas Stations," ABB Environmental Services, Inc. Filed in Group 2&7.
6. Comments dated January 25, 1993 from D. Lynne Chappell, MADEP on the December, 1992 "Final Site Investigations Report," Ecology and Environment, Inc. Filed in Group 1B.
7. Comments dated July 9, 1993 from D. Lynne Chappell, MADEP on the May, 1993 "Final SI Report, Groups 2 & 7 and Historic Gas Stations, Volume I - IV," ABB Environmental Services, Inc. Filed in Group 2&7.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

8. Comments dated July 15, 1993 from James P. Byrne, USEPA Region I on the May, 1993 "Final SI Report, Groups 2 & 7 and Historic Gas Stations, Volume I - IV," ABB Environmental Services, Inc. Filed in Group 2&7.

Responses to Comments

1. Responses dated September, 1993 from U.S. Army Environmental Center to the comments on the May, 1993 "Final SI Report, Groups 2 & 7 and Historic Gas Stations, Volume I - IV," ABB Environmental Services, Inc. Filed in Group 2&7.

Meeting Notes

1. SI Data Package Meeting Notes for Groups 2 & 7 and Historic Gas Stations, ABB Environmental Services, Inc., (April, 1993). Filed in Group 2&7.

2.0 REMOVAL RESPONSE

2.2 Removal Response Reports

Reports

1. Resource Conservation and Recovery Act Closure Report for Explosive Ordnance Demolition Open Burn/Open Detonation Area, Ecology and Environment, Inc., (September, 1994). Filed in Group 1B.

Comments

1. Comments dated October 20, 1994 from D. Lynne Welsh, MADEP on the September, 1994 "Resource Conservation and Recovery Act Closure Report for Explosive Ordnance Demolition "Open Burn/Open Detonation Area," Ecology and Environment, Inc. Filed in Group 1B.

2.9 Action Memoranda

Reports

1. Final Action Memorandum for the Removal Action at Study Area 32 (Signed October 26, 1992), (October, 1992). Filed in Group 1B.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

3.0 REMEDIAL INVESTIGATION (RI)

3.2 Sampling and Analysis Data

Reports

1. Data Comparison Report, Group 2 & 7 Sites Through Round 1 Sampling, CDM Federal Programs Corporation, (March, 1993). Filed in Group 2&7.

3.4 Interim Deliverables

Work Plans

1. Final Projects Operations Plan - Volume I - III, ABB Environmental Services, Inc., (December, 1992). Filed in Group 1A.

Reports

1. Final Ground Water Flow Model at Fort Devens, Engineering Technologies Associates, Inc., (May 24, 1993). Filed in Group 1A.
2. Final Radiological Survey and Remediation Report DRMO Yard, ABB Environmental Services, Inc., (November, 1996). Filed in Group 1B.

Comments

1. Comments dated January 12, 1993 from James P. Byrne, USEPA Region I on the December, 1992 "Final Projects Operations Plan - Volume I - III," ABB Environmental Services, Inc. Filed in Group .
2. Comments Dated February 1, 1993 from James P. Byrne, EPA Region I and D. Lynne Chappell, Commonwealth of Massachusetts Department of Environmental Protection on the October 30, 1992 "Draft Final Ground Water Flow Model at Fort Devens,". Filed in Group 1A.
3. Comments dated February 17, 1993 from D. Lynne Chappell, MADEP on the December, 1992 "Final Projects Operations Plan - Volume I - III," ABB Environmental Services, Inc. Filed in Group.
4. Comments dated September 3, 1996 from James P. Byrne, USEPA Region I on the July, 1996 "Draft Radiological Survey and Remediation Report DRMO Yard," ABB Environmental Services, Inc. Filed in Group 1B.
5. Comments dated September 16, 1996 from John Regan, MADEP on the July, 1996 "Draft Radiological Survey and Remediation Report DRMO Yard," ABB Environmental Services, Inc. Filed in Group 1B.

Comments on Responses to Comments

1. Comments dated December 3, 1996 from James P. Byrne, USEPA Region I on the responses on the November, 1996 "Final Radiological Survey and Remediation Report DRMO Yard," ABB Environmental Services, Inc. Filed in Group 1B.

3.5 Applicable or Relevant and Appropriate Requirements (ARARs)

Reports

1. Draft Applicable or Relevant and Appropriate Requirements (ARARs) for CERCLA Remedial Actions, U.S. Army Toxic and Hazardous Materials Agency, (June, 1992). Filed in Group 1B.
2. Draft Assessment of Location-Specific Applicable or Relevant and Appropriate Requirements (ARARs) for Fort Devens, Massachusetts, U.S. Army Toxic and Hazardous Materials Agency, (September, 1992). Filed in Group 1B.

3.6 Remedial Investigation (RI) Reports

Reports

1. Final Remedial Investigations Report, Functional Area II, Volume I - IV, Ecology and Environment, Inc., (August, 1994). Filed in Group 1B.

Comments

1. Comments dated October 14, 1994 from D. Lynne Welsh, MADEP on the August, 1994 "Final Remedial Investigations Report, Functional Area II, Volume I - IV," Ecology and Environment, Inc. Filed in Group 1B.

Responses to Comments

1. Responses dated December 21, 1994 from U.S. Army Environmental Center to the comments on the December 21, 1994 "Responses on the following document: "Draft Remedial Investigation Addendum Report," ABB Environmental Services, Inc.," U.S. Army Environmental Center. Filed in Group 1A.
2. Responses dated March 17, 1995 from U.S. Army Environmental Center to the comments on the August, 1994 "Final Remedial Investigations Report, Functional Area II, Volume I - IV," Ecology and Environment, Inc. Filed in Group 1B.

3.7 Work Plans and Progress Reports

Work Plans

1. Final Oversight and Screening Activities, DRMO Yard Addendum to Work Plan Supplement Remedial Investigations - Group 1B Sites, Fort Devens, Massachusetts, Ecology and Environment, Inc., (February, 1993). Filed in Group 1B.
2. Final Work Plan Supplement - Remedial Investigations, Group 1B Sites, Ecology and Environment, Inc., (February, 1993). Filed in Group 1B.
3. Draft Quality Assurance Project Plan, Remedial Investigations, Groups 2 & 7 and South Post Impact Area, Fort Devens, Massachusetts, Ecology and Environment, Inc., (June, 1993). Filed in Group 1B.

RECORD OF DECISION

Areas of Contamination 32 and 43A

Devens, Massachusetts

4. Technical Plans Supplement B Remedial Investigations/Feasibility Studies Group 1B Sites and Functional Areas I and II, Fort Devens, Massachusetts, Ecology and Environment, Inc., (September, 1993). Filed in Group 1B.
5. Final Radiological Survey Work Plan, Defense Reutilization and Marketing Office (DRMO) Yard, Fort Devens, Massachusetts, ABB Environmental Services, Inc., (August 4, 1995). Filed in Group 1B.
6. Radiological Survey Work Plan Addendum Defense Reutilization and Marketing Office (DRMO) Yard, ABB Environmental Services, Inc., (February 14, 1996). Filed in Group 1B.

Comments

1. Comments dated March 3, 1992 from Carrol J. Howard, Fort Devens on the February, 1992 "Final Work Plan and Field Sampling Plan," Ecology and Environment, Inc. Filed in Group 1A.
2. Comments on the "Draft Remedial Investigation Work Plan for Group 1B," Ecology and Environment, Inc. Filed in Group 1B.
3. Comments dated September 30, 1992 from James P. Byrne, USEPA Region I on the August, 1992 "Draft Work Plan Supplement - Remedial Investigations," Ecology and Environment, Inc. Filed in Group 1B.
4. Comments dated October 13, 1992 from D. Lynne Chappell, MADEP on the August, 1992 "Draft Work Plan Supplement - Remedial Investigations," Ecology and Environment, Inc. Filed in Group 1B.
5. Comments dated January 11, 1993 from James P. Byrne, USEPA Region I on the November, 1992 "Draft Final Work Plan Supplement - Remedial Investigations, Group 1B Sites," Ecology and Environment, Inc. Filed in Group 1B.
6. Comments dated January 15, 1993 from D. Lynne Chappell, MADEP on the November, 1992 "Draft Final Work Plan Supplement - Remedial Investigations, Group 1B Sites," Ecology and Environment, Inc. Filed in Group 1B.
7. Comments dated March 23, 1993 from D. Lynne Chappell, MADEP on the February, 1993 "Final Oversight and Screening Activities, DRMO Yard Addendum to Work Plan Supplement Remedial Investigations - Group 1B Sites, Fort Devens, Massachusetts," Ecology and Environment, Inc. Filed in Group 1B.
8. Comments dated June 21, 1993 from James P. Byrne, USEPA Region I on the September, 1993 "Technical Plans Supplement B Remedial Investigations/Feasibility Studies Group 1B Sites and Functional Areas I and II, Fort Devens, Massachusetts," Ecology and Environment, Inc. Filed in Group 1B.
9. Comments dated November 3, 1993 from D. Lynne Welsh, MADEP on the September, 1993 "Technical Plans Supplement B Remedial Investigations/Feasibility Studies Group 1B Sites and Functional Areas I and II, Fort Devens, Massachusetts," Ecology and Environment, Inc. Filed

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

- in Group 1B.
10. Comments dated July 25, 1995 from D. Lynne Welsh, MADEP on the July 10, 1995 "Draft Radiological Survey Work Plan, Defense Reutilization and Marketing Office (DRMO) Yard, Fort Devens, Massachusetts," ABB Environmental Services, Inc. Filed in Group 1B.
 11. Comments dated August 11, 1995 from James P. Byrne, USEPA Region I on the August 4, 1995 "Final Radiological Survey Work Plan, Defense Reutilization and Marketing Office (DRMO) Yard, Fort Devens, Massachusetts," ABB Environmental Services, Inc. Filed in Group 1B.
 12. Comments dated August 18, 1995 from D. Lynne Welsh, MADEP on the August 4, 1995 "Final Radiological Survey Work Plan, Defense Reutilization and Marketing Office (DRMO) Yard, Fort Devens, Massachusetts," ABB Environmental Services, Inc. Filed in Group 1B.
 13. Comments dated February 21, 1996 from James P. Byrne, USEPA Region I on the February 14, 1996 "Radiological Survey Work Plan Addendum Defense Reutilization and Marketing Office (DRMO) Yard," ABB Environmental Services, Inc. Filed in Group 1B.
 14. Comments dated March 8, 1996 from John Regan, MADEP on the February 14, 1996 "Radiological Survey Work Plan Addendum Defense Reutilization and Marketing Office (DRMO) Yard," ABB Environmental Services, Inc. Filed in Group 1B.

Responses to Comments

1. Responses from U.S. Army Environmental Center to the comments on the September, 1993 "Technical Plans Supplement B Remedial Investigations/Feasibility Studies Group 1B Sites and Functional Areas I and II, Fort Devens, Massachusetts," Ecology and Environment, Inc. Filed in Group 1B.
2. Responses dated August 4, 1995 from U.S. Army Environmental Center to the comments on the July 10, 1995 "Draft Radiological Survey Work Plan, Defense Reutilization and Marketing Office (DRMO) Yard, Fort Devens, Massachusetts," ABB Environmental Services, Inc. Filed in Group 1B.

Comments on Responses to Comments

1. Comments dated November 8, 1993 from James P. Byrne, USEPA Region I on the responses on the September, 1993 "Technical Plans Supplement B Remedial Investigations/Feasibility Studies Group 1B Sites and Functional Areas I and II, Fort Devens, Massachusetts," Ecology and Environment, Inc. Filed in Group 1B.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

3.9 Heath Assessments

Work Plans

1. Risk Assessment Approach Plan (RAAP) Remedial Investigations - Group 1B Sites, Ecology and Environment, Inc., (May, 1994). Filed in Group 1B.

4.0 FEASIBILITY STUDY (FS)

4.4 Interim Deliverables

Work Plans

1. Draft Initial Screening of Alternatives for Functional Areas I and II, Ecology and Environment, Inc., (June, 1994). Filed in Group 1B.

Reports

1. Detailed Analysis of Alternatives for Functional Areas I and II, Ecology and Environment, Inc., (September, 1994). Filed in Group 1B.

Comments

1. Comments dated July 18, 1994 from D. Lynne Welsh, MADEP on the June, 1994 "Draft Initial Screening of Alternatives for Functional Areas I and II," Ecology and Environment, Inc. Filed in Group 1B.
2. Comments dated October 13, 1994 from D. Lynne Welsh, MADEP on the September, 1994 "Detailed Analysis of Alternatives for Functional Areas I and II," Ecology and Environment, Inc. Filed in Group 1B.

Responses to Comments

1. Responses dated August, 1994 from U.S. Army Environmental Center to the comments on the June, 1994 "Draft Initial Screening of Alternatives for Functional Areas I and II," Ecology and Environment, Inc. Filed in Group 1B.

4.6 Feasibility Study (FS) Reports

Reports

1. Final Feasibility Study for Functional Area II, Ecology and Environment, Inc., (September, 1996). Filed in Group 1B.
2. Revised Final Feasibility Study for Functional Area II, Ecology and Environment, Inc., (January 1997). Filed in Group 1B.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

Comments

1. Comments dated May 8, 1995 from D. Lynne Welsh, MADEP on the March, 1995 "Draft Feasibility Study for Functional Area II, Fort Devens, Massachusetts," Ecology and Environment, Inc. Filed in Group 1B.
2. Comments dated November 8, 1996 from James P. Byrne, USEPA Region I on the September, 1996 "Final Feasibility Study for Functional Area II," Ecology and Environment, Inc. Filed in Group 1B.
3. Comments dated May 9, 1997 from James P. Byrne, USEPA Region I on the January 1997 "Revised Final Feasibility Study for Functional Area II," Ecology and Environment, Inc. Filed in Group 1B.

4.9 Proposed Plans for Selected Remedial Action

Reports

1. Proposed Plan for the Defense Reutilization Marketing Office (DRMO) Yard (AOC 32) and Petroleum, Oils, and Lubrication Storage Area (POL) (AOCs 43A), Horne Engineering Services, Inc., (June, 1997). Filed in Group 1B.

Comments

1. Comments dated March 3, 1997 from John Regan, MADEP on the January 31, 1997 "Proposed Plan for the Defense Reutilization Marketing Office (DRMO) Yard (AOC 32) and Petroleum, Oils, and Lubrication Storage Area (POL) (AOCs 43A)," Horne Engineering Services, Inc. Filed in Group 1B.
2. Comments dated May 9, 1997 from James P. Byrne, USEPA Region I on the January 31, 1997 "Proposed Plan for the Defense Reutilization Marketing Office (DRMO) Yard (AOC 32) and Petroleum, Oils, and Lubrication Storage Area (POL) (AOCs 43A)," Horne Engineering Services, Inc. Filed in Group 1B.

5.0 RECORD OF DECISION (ROD)

5.4 Record of Decision (ROD)

Reports

1. Draft Record of Decision for the Defense Reutilization Marketing Office (DRMO) Yard (AOC 32) and Petroleum, Oils, and Lubrication Storage Area (POL) (AOCs 43A), Horne Engineering Services, Inc., (February, 1997). Filed in Group 1B.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

Comments

1. Comments dated April 17, 1997 from John Regan, MADEP on the February, 1997 "Draft Record of Decision for the Defense Reutilization Marketing Office (DRMO) Yard (AOC 32) and Petroleum, Oils, and Lubrication Storage Area (POL) (AOCs 43A)," Horne Engineering Services, Inc. Filed in Group 1B.

10.0 ENFORCEMENT

10.16 Federal Facility Agreements

1. Final Federal Facility Agreement Under CERCLA Section 120, EPA Region I and U.S. Department of the Army with attached map, , (November 15, 1991). Filed in Group 1A.

13.0 COMMUNITY RELATIONS

13.2 Community Relations Plans

1. Final Community Relations Plan, Ecology and Environment, Inc., (February, 1992). Filed in Group 1A.

Reports

1. Fort Devens Community Relations Plan for Environmental Restoration, 1995 Update, ABB Environmental Services, Inc., (May, 1995). Filed in Group 1A.

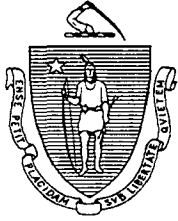
Comments

1. Comments dated March 19, 1992 from James P. Byrne, USEPA Region I on the February, 1992 "Final Community Relations Plan," Ecology and Environment, Inc. Filed in Group 1B.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

APPENDIX B — DECLARATION OF STATE CONCURRENCE

This page intentionally left blank.



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
CENTRAL REGIONAL OFFICE

Mary J. Anderson

ARGEO PAUL CELLUCCI
Governor

TRUDY COXE
Secretary

DAVID B. STRUHS
Commissioner

December 29, 1997

Mr. Harley F. Laing, Director
U.S. Environmental Protection Agency
New England
JFK Federal Building
Boston, MA 02203

RE: Record of Decision for Area for Contamination (AOC) 32 and
AOC 43A Devens, Massachusetts.

Dear Mr. Laing:

The Massachusetts Department of Environmental Protection (MADEP) has reviewed the Record of Decision (ROD) proposed by the United States Army and the U.S. Environmental Protection Agency (EPA), for the Area of Contamination AOC 32 and AOC 43A and the selected remedy.

The ROD identifies three separate Operable Units. The Operable Units and the selected remedies are:

1. Defense Reutilization and Marketing Office (DRMO) Yard Soils Operable Unit AOC 32; The excavation and removal of 1,300 cubic yards of Polychlorinated Biphenyls impacted soil is planned for the DRMO yard as the selected remedial alternative.
2. Underground Storage Tank (UST) #13 Groundwater Operable Unit AOC 32; The chosen remedial alternative for UST #13, Groundwater Operable Unit AOC 32, is intrinsic remediation and groundwater monitoring for 30 years to evaluate natural attenuation and bioremediation progress. Along with above noted remedy the UST and 227 cubic yard of waste oil contaminated soil was removed in May, 1992.

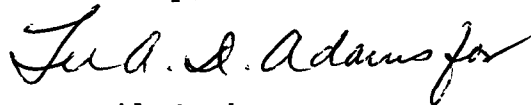
Record of Decision; Area of Contamination
AOC 32 and AOC43A, Devens, MA, December 29, 1997
page 2.

3. Petroleum, Oils and Lubricants Storage Area Defense Reutilization and Marketing Office Yard Groundwater Operable Unit AOC 32 and AOC 43A; The selected remedial alternative is intrinsic remediation and groundwater monitoring for 30 years to evaluate natural attenuation and bioremediation progress.

The MADEP concurs with the ROD for AOC 32, UST #13 and AOC 43A and would like to thank the US Army, particularly Jim Chambers BRAC Environmental Coordinator, and Jim Byrne, EPA, the Fort Devens Remedial Project Manager, for their efforts to ensure that the requirements of the MADEP were met. We look forward to continuing to work with the EPA at other sites at Devens.

If you have any questions, please contact David M. Salvadore at (508) 792-7653, ext. 3842.

Sincerely,



E. Gail Suchman
Regional Director

p:\DSAL\AOC32\43A.ROD

CC: Edward Kunce, MADEP
Jay Naparstek, MADEP
Informational Repositories
Fort Devens Mailing List
Ron Ostrowski, DCC
Jim Byrne, EPA
Jeff Waugh, AEC
Patricia Momm, ABB
Mark Applebee, ACOE

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

APPENDIX C — FIGURES

This page intentionally left blank.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

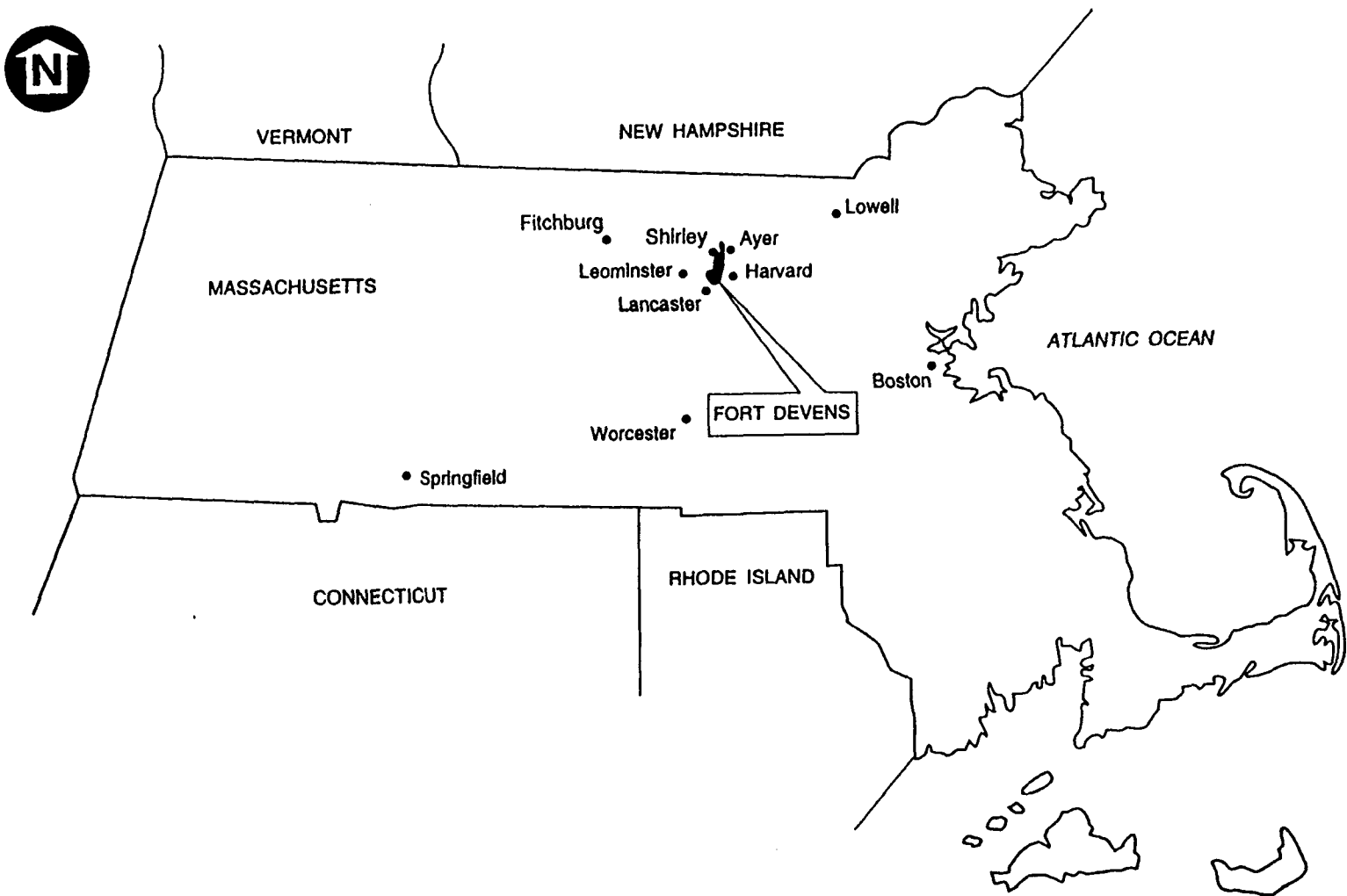
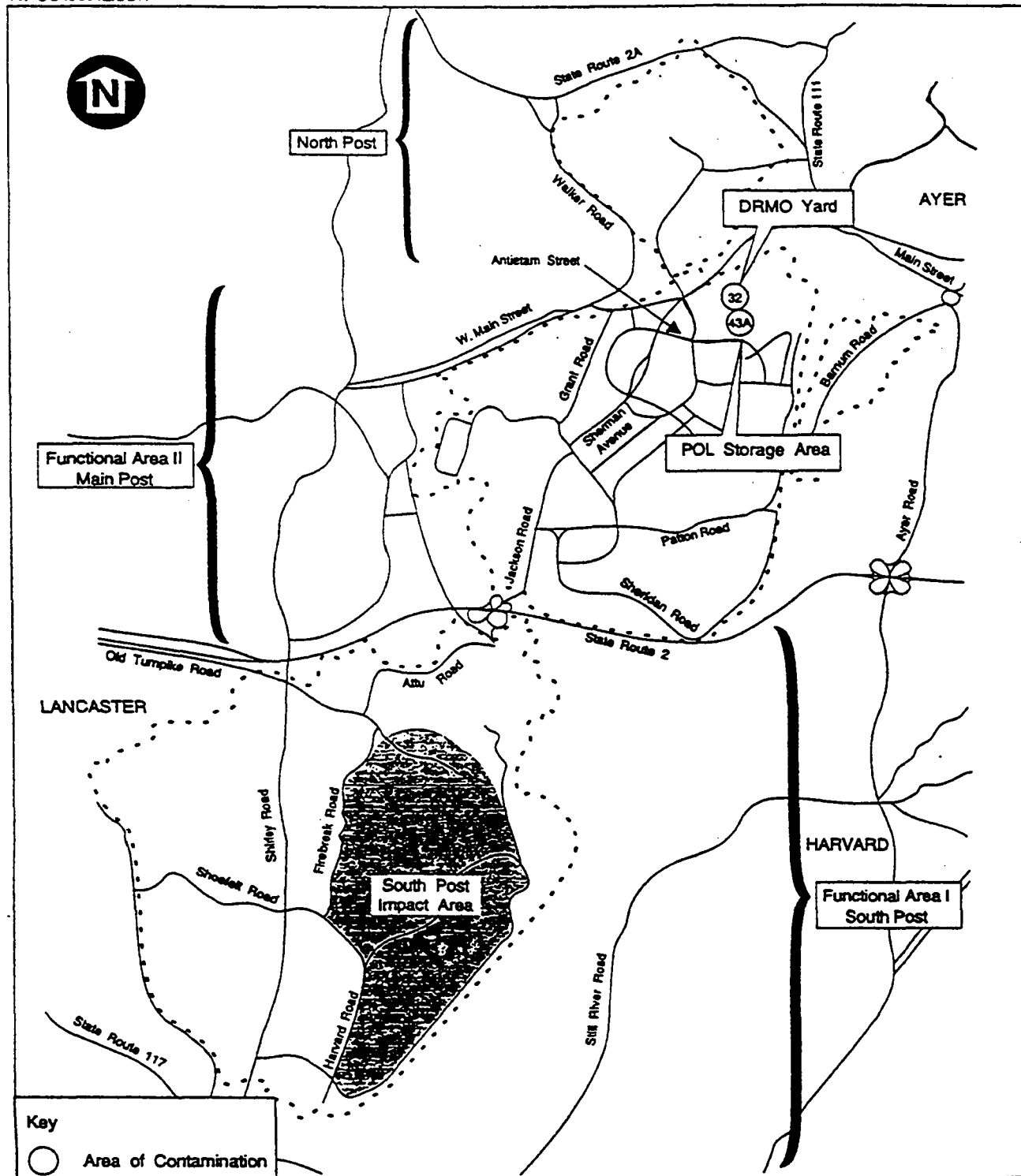


Figure 1 - Location of Devens in Massachusetts

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

11: UC490912.CDR



Source: Interagency Agreement USEPA / USAEC

Scale in miles

1 3/4 1/2 1/4 0 1

Legend — Road

- - - Installation Boundary

Figure 2 - Location of Functional Area II Sites

RECORD OF DECISION **Areas of Contamination 32 and 43A** **Devens, Massachusetts**

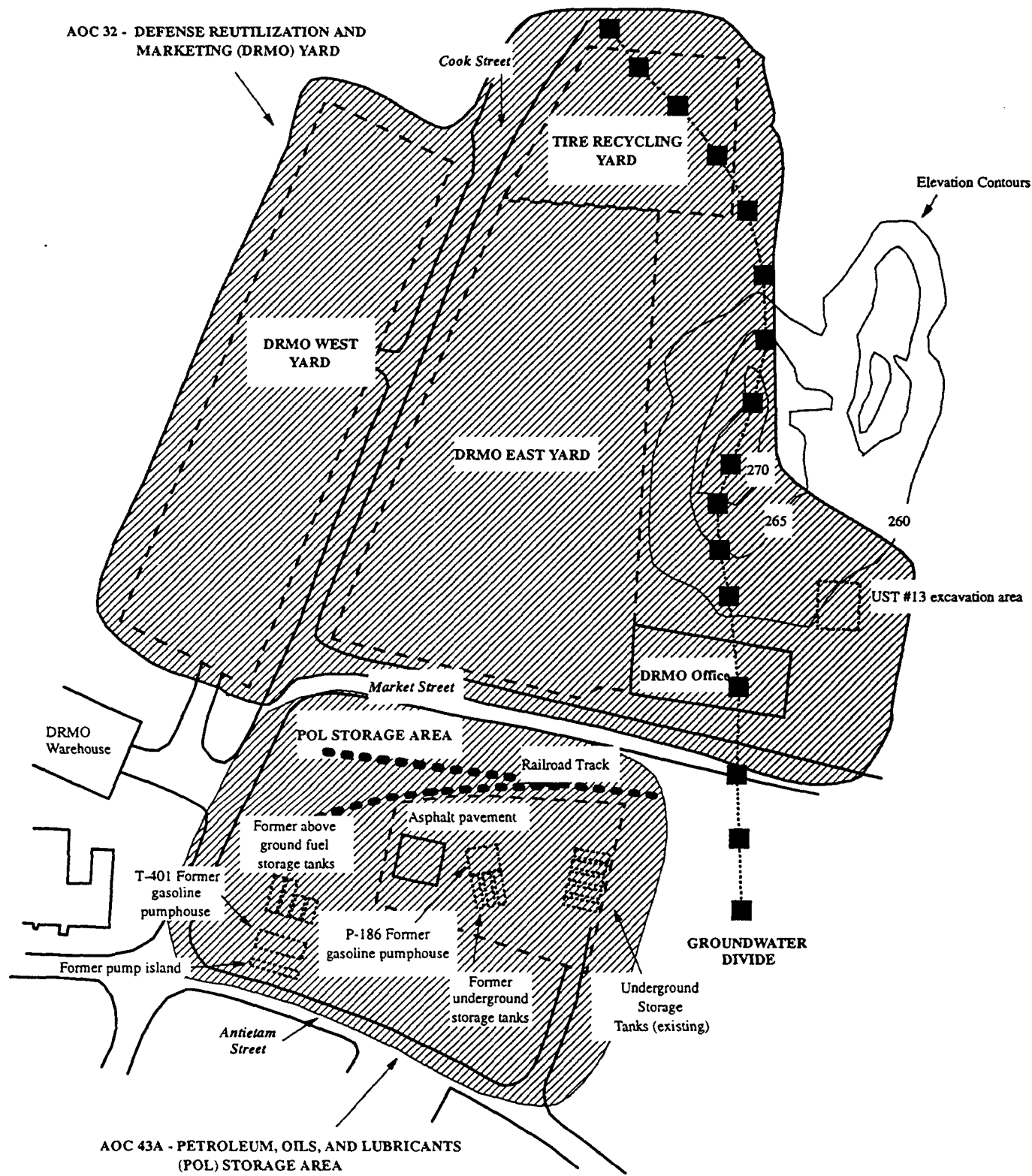


Figure 3 - Approximate Boundaries of AOC 32 and 43A

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

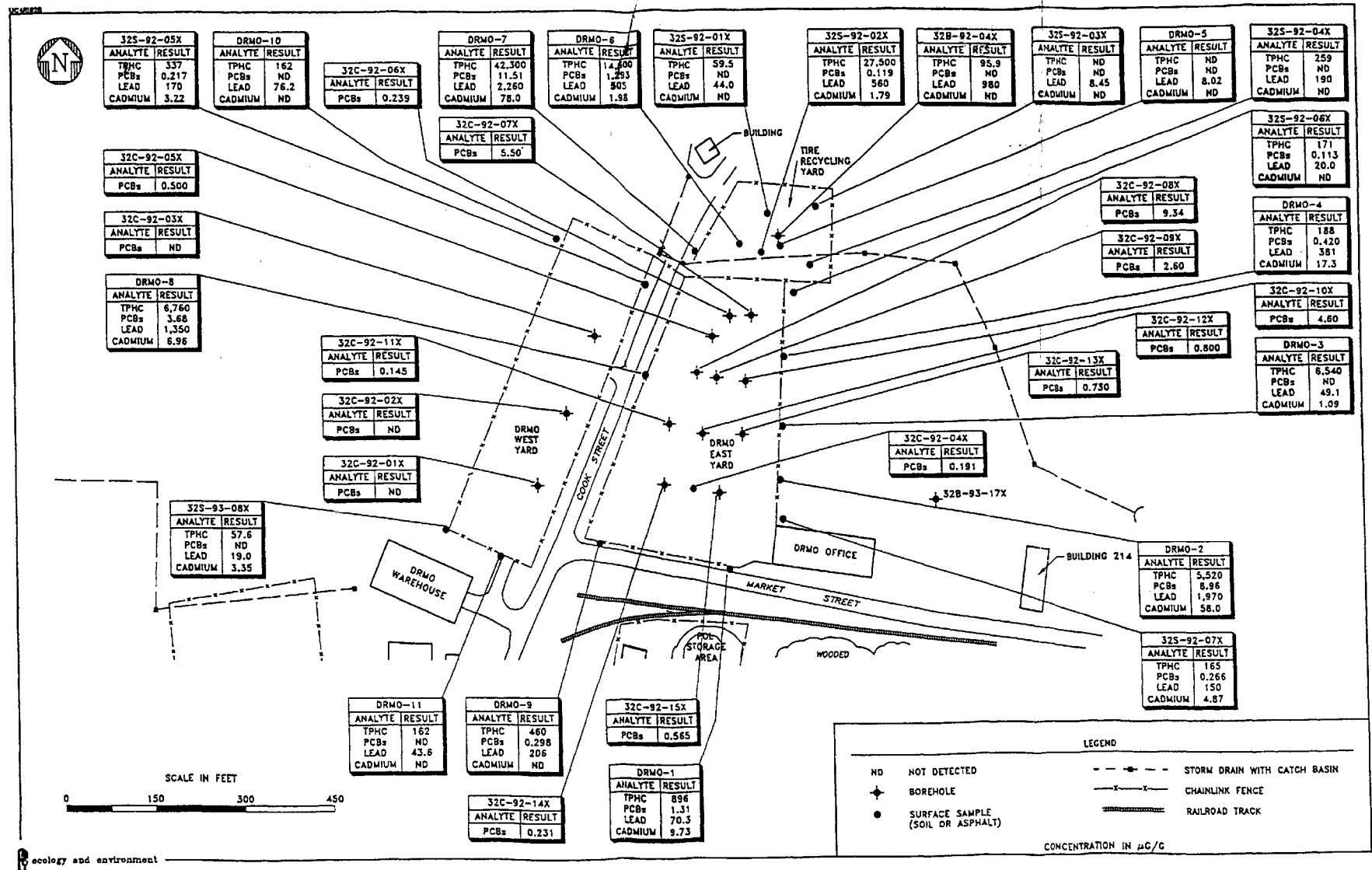


Figure 4 - Contamination in Surface Soil and Asphalt at AOC 32

RECORD OF DECISION Areas of Contamination 32 and 43A Devens, Massachusetts

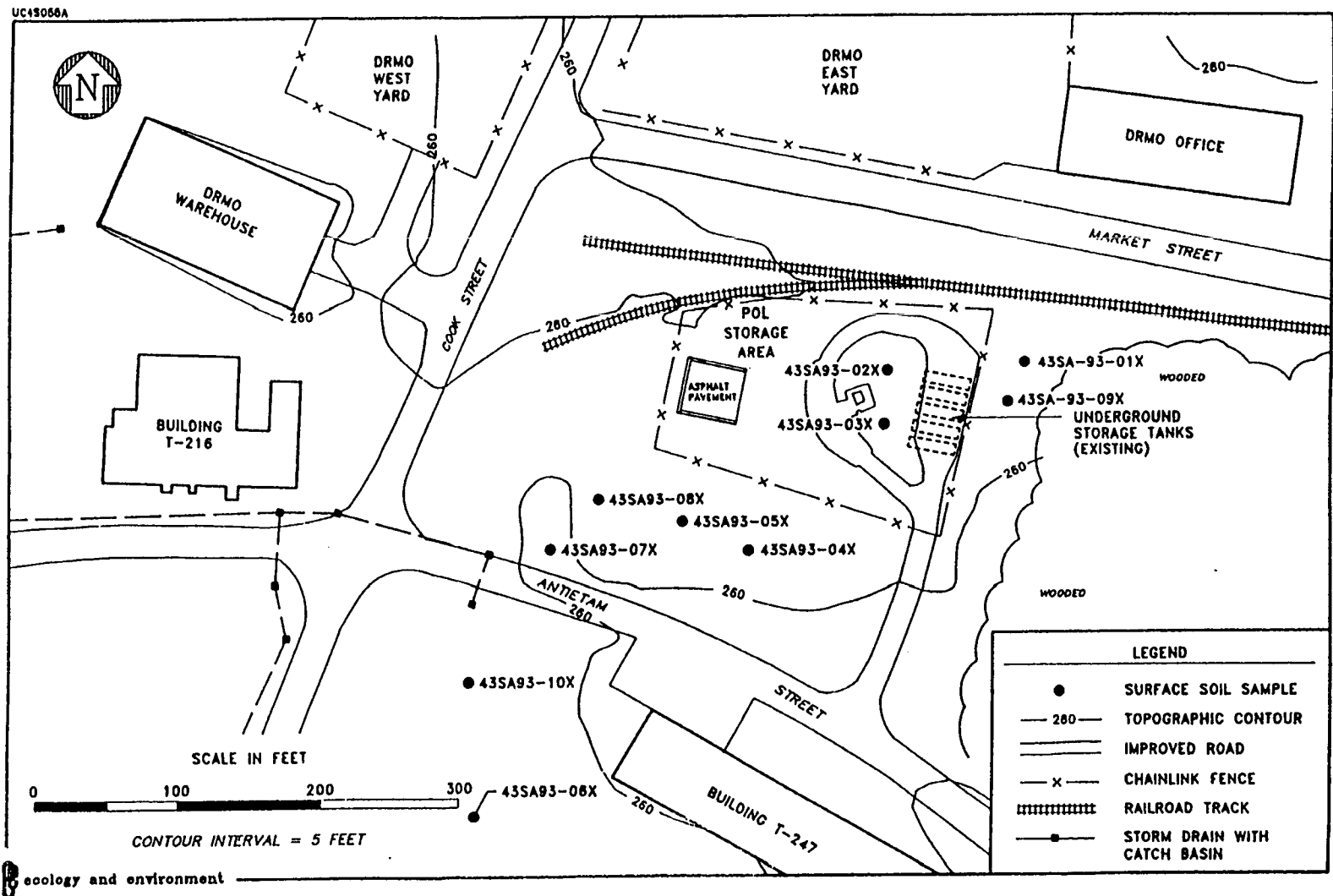


Figure 5 - Location of Soil Sampled at AOC 43A

LEGEND

- ★ BOREHOLE
- 100- ISOPLETH OF TPHC IN SOIL LESS THAN 25 FEET BGS
- 100- ISOPLETH OF TPHC BETWEEN 25-30 FEET BGS
- 100- ISOPLETH OF TPHC IN SOIL BELOW 30 FEET BGS
- 25- TOPOGRAPHIC CONTOUR
- X- CHAINLINK FENCE
- IMPROVED ROAD
- RAILROAD TRACK
- STORM DRAIN WITH CATCH BASIN
- F-F CROSS SECTION

NOTE: CONCENTRATION IN $\mu\text{g/g}$

Map Labels: DRMO WAREHOUSE, BUILDING T-216, FORMER ABOVE GROUND FUEL STORAGE TANKS, 43BA93-03X, B-41S, T-401 FORMER GASOLINE PUMPHOUSE, FORMER PUMP ISLAND, ANTIETAM STREET, BUILDING T-247, POL STORAGE AREA, 43BA93-01X, 43BA93-02X, 43BA93-04X, 43BA93-05X, 43BA93-06X, UNDERGROUND STORAGE TANKS (EXISTING), MARKET STREET, COOK STREET, DRMO OFFICE, WOODED.

Scale in Feet: 0, 60, 120, 180

Map Features: Borehole locations (e.g., B-10S, B-11S, B-12S, B-13S, B-14S, B-15S, B-16S, B-17S, B-18S, B-19S, B-20S, B-21S, B-22S, B-23S, B-24S, B-25S, B-26S, B-27S, B-28S, B-29S, B-30S, B-31S, B-32S, B-33S, B-34S, B-35S, B-36S, B-37S, B-38S, B-39S, B-40S, B-41S, B-42S, B-43S, B-44S, B-45S, B-46S, B-47S, B-48S, B-49S, B-50S, B-51S, B-52S, B-53S, B-54S, B-55S, B-56S, B-57S, B-58S, B-59S, B-60S, B-61S, B-62S, B-63S, B-64S, B-65S, B-66S, B-67S, B-68S, B-69S, B-70S, B-71S, B-72S, B-73S, B-74S, B-75S, B-76S, B-77S, B-78S, B-79S, B-80S, B-81S, B-82S, B-83S, B-84S, B-85S, B-86S, B-87S, B-88S, B-89S, B-90S, B-91S, B-92S, B-93S, B-94S, B-95S, B-96S, B-97S, B-98S, B-99S, B-100S, B-101S, B-102S, B-103S, B-104S, B-105S, B-106S, B-107S, B-108S, B-109S, B-110S, B-111S, B-112S, B-113S, B-114S, B-115S, B-116S, B-117S, B-118S, B-119S, B-120S, B-121S, B-122S, B-123S, B-124S, B-125S, B-126S, B-127S, B-128S, B-129S, B-130S, B-131S, B-132S, B-133S, B-134S, B-135S, B-136S, B-137S, B-138S, B-139S, B-140S, B-141S, B-142S, B-143S, B-144S, B-145S, B-146S, B-147S, B-148S, B-149S, B-150S, B-151S, B-152S, B-153S, B-154S, B-155S, B-156S, B-157S, B-158S, B-159S, B-160S, B-161S, B-162S, B-163S, B-164S, B-165S, B-166S, B-167S, B-168S, B-169S, B-170S, B-171S, B-172S, B-173S, B-174S, B-175S, B-176S, B-177S, B-178S, B-179S, B-180S, B-181S, B-182S, B-183S, B-184S, B-185S, B-186S, B-187S, B-188S, B-189S, B-190S, B-191S, B-192S, B-193S, B-194S, B-195S, B-196S, B-197S, B-198S, B-199S, B-200S, B-201S, B-202S, B-203S, B-204S, B-205S, B-206S, B-207S, B-208S, B-209S, B-210S, B-211S, B-212S, B-213S, B-214S, B-215S, B-216S, B-217S, B-218S, B-219S, B-220S, B-221S, B-222S, B-223S, B-224S, B-225S, B-226S, B-227S, B-228S, B-229S, B-230S, B-231S, B-232S, B-233S, B-234S, B-235S, B-236S, B-237S, B-238S, B-239S, B-240S, B-241S, B-242S, B-243S, B-244S, B-245S, B-246S, B-247S, B-248S, B-249S, B-250S, B-251S, B-252S, B-253S, B-254S, B-255S, B-256S, B-257S, B-258S, B-259S, B-260S, B-261S, B-262S, B-263S, B-264S, B-265S, B-266S, B-267S, B-268S, B-269S, B-270S, B-271S, B-272S, B-273S, B-274S, B-275S, B-276S, B-277S, B-278S, B-279S, B-280S, B-281S, B-282S, B-283S, B-284S, B-285S, B-286S, B-287S, B-288S, B-289S, B-290S, B-291S, B-292S, B-293S, B-294S, B-295S, B-296S, B-297S, B-298S, B-299S, B-300S, B-301S, B-302S, B-303S, B-304S, B-305S, B-306S, B-307S, B-308S, B-309S, B-310S, B-311S, B-312S, B-313S, B-314S, B-315S, B-316S, B-317S, B-318S, B-319S, B-320S, B-321S, B-322S, B-323S, B-324S, B-325S, B-326S, B-327S, B-328S, B-329S, B-330S, B-331S, B-332S, B-333S, B-334S, B-335S, B-336S, B-337S, B-338S, B-339S, B-340S, B-341S, B-342S, B-343S, B-344S, B-345S, B-346S, B-347S, B-348S, B-349S, B-350S, B-351S, B-352S, B-353S, B-354S, B-355S, B-356S, B-357S, B-358S, B-359S, B-360S, B-361S, B-362S, B-363S, B-364S, B-365S, B-366S, B-367S, B-368S, B-369S, B-370S, B-371S, B-372S, B-373S, B-374S, B-375S, B-376S, B-377S, B-378S, B-379S, B-380S, B-381S, B-382S, B-383S, B-384S, B-385S, B-386S, B-387S, B-388S, B-389S, B-390S, B-391S, B-392S, B-393S, B-394S, B-395S, B-396S, B-397S, B-398S, B-399S, B-400S, B-401S, B-402S, B-403S, B-404S, B-405S, B-406S, B-407S, B-408S, B-409S, B-410S, B-411S, B-412S, B-413S, B-414S, B-415S, B-416S, B-417S, B-418S, B-419S, B-420S, B-421S, B-422S, B-423S, B-424S, B-425S, B-426S, B-427S, B-428S, B-429S, B-430S, B-431S, B-432S, B-433S, B-434S, B-435S, B-436S, B-437S, B-438S, B-439S, B-440S, B-441S, B-442S, B-443S, B-444S, B-445S, B-446S, B-447S, B-448S, B-449S, B-450S, B-451S, B-452S, B-453S, B-454S, B-455S, B-456S, B-457S, B-458S, B-459S, B-460S, B-461S, B-462S, B-463S, B-464S, B-465S, B-466S, B-467S, B-468S, B-469S, B-470S, B-471S, B-472S, B-473S, B-474S, B-475S, B-476S, B-477S, B-478S, B-479S, B-480S, B-481S, B-482S, B-483S, B-484S, B-485S, B-486S, B-487S, B-488S, B-489S, B-490S, B-491S, B-492S, B-493S, B-494S, B-495S, B-496S, B-497S, B-498S, B-499S, B-500S, B-501S, B-502S, B-503S, B-504S, B-505S, B-506S, B-507S, B-508S, B-509S, B-510S, B-5

Printed on Recycled Paper

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

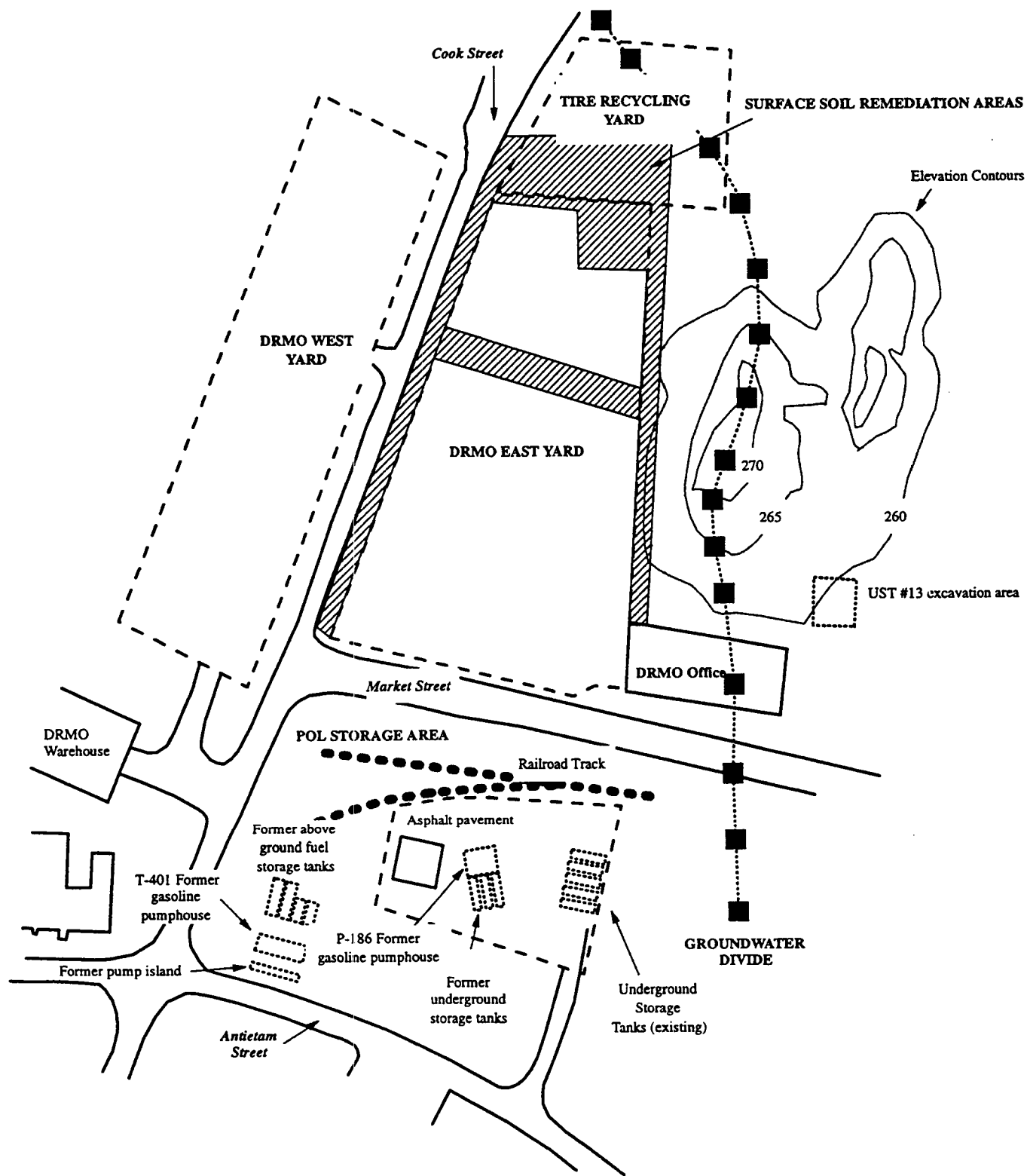


Figure 7 - DRMO Yard Soils Operable Unit

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

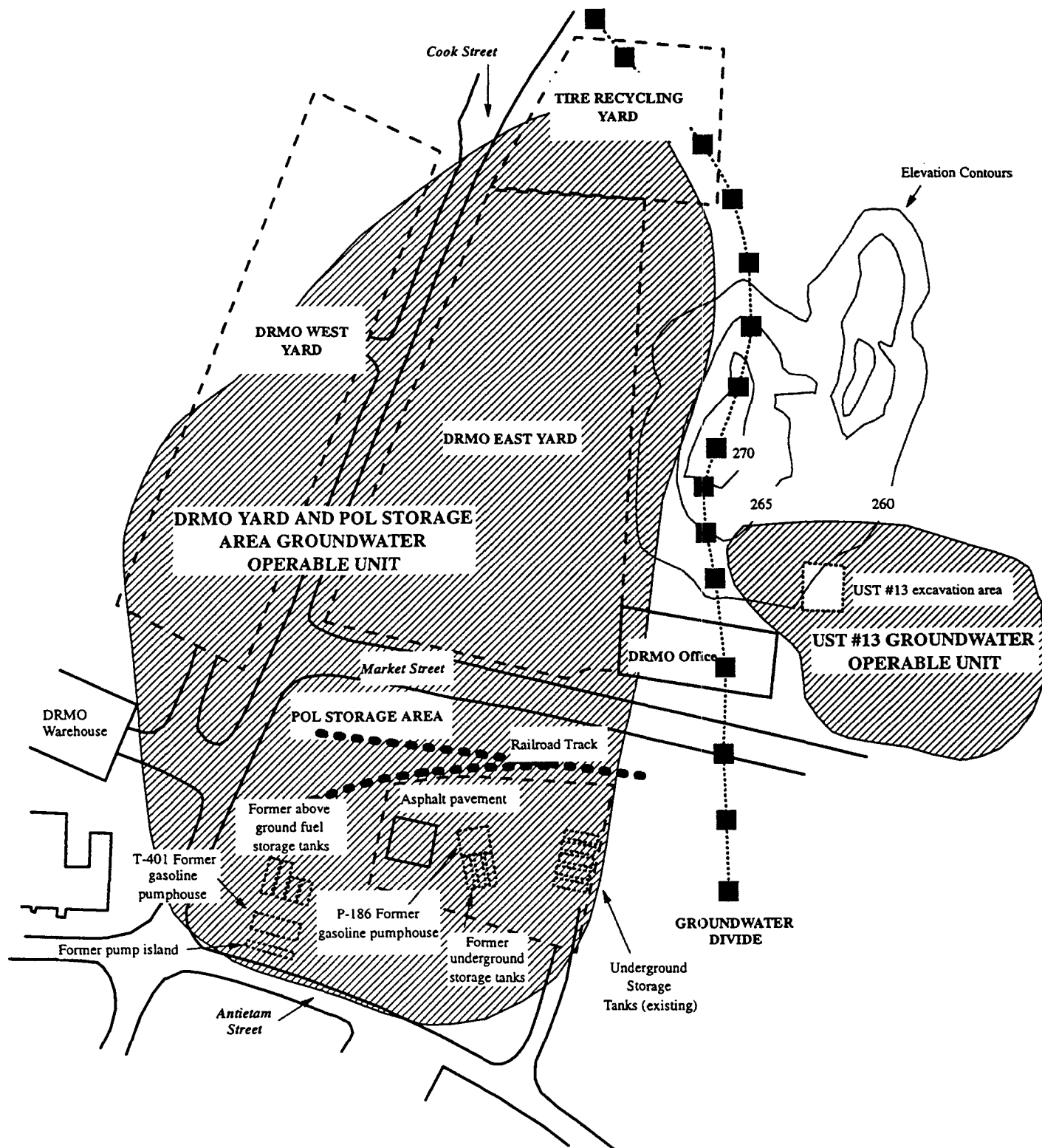


Figure 8 - DRMO Yard and POL Storage Area Groundwater Operable Units

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

APPENDIX D — RESPONSIVENESS SUMMARY

This page intentionally left blank.

Volume I
Pages 1 to 4

U.S. ARMY

BASE REALIGNMENT AND CLOSURE
DEVENS RESERVE FORCES TRAINING AREA

- - - - -x
:
PUBLIC HEARING ON PROPOSED PLAN :
FOR AOC's 32 and 43A :
:
- - - - -x

BEFORE: James Chambers, BRAC Environmental
Coordinator

Held at:

Devens Reserve Forces Training Area Headquarters
31 Quebec Street (Building 679)
Ayer, Massachusetts 01432
Thursday, July 17, 1997
7:29 p.m.

(Ken A. DiFraia, Certified Court Reporter)

* * * *

DORIS O. WONG ASSOCIATES, Inc.

50 FRANKLIN STREET, BOSTON, MASSACHUSETTS 02110 TELEPHONE (617) 426-2432

P R O C E E D I N G S

MR. CHAMBERS: Good evening. My name is James Chambers. I'm the BRAC environmental coordinator for the United States Army here at the Devens Reserved Forces training area.

Thank you for coming out this evening. We are holding a public hearing for the proposed plan for remediation for areas of contamination, 32 DRMO yard and 43A, the petroleum oil and lubrication storage facility.

This evening we are moving towards the end of the public comment period, the end of the 30 day public comment period which commenced on June 18th. The comment period ends tomorrow, July 18th. I invite you to either submit any comments you would like for the record, either written by close of business tomorrow or verbally this evening. I also would ask you that if you have a comment to make this evening, you announce your name for the court stenographer we have for recording the meeting this evening.

It's 7:30 right now. I'll hold the meeting open for five minutes. As there's only one member of the public here this evening, we'll see if

1 there's anybody else that would like to make a
2 comment. Again, please announce your name and
3 comment or submit a written comment. Thank you.

4 We will take a timeout for a moment.

5 (Pause)

6 MR. LINDE: For the record, my name is
7 Richard Linde from the Town of Ayer Water
8 Department. My concerns, which I believe were
9 handled to my satisfaction and possibly the Town's
10 satisfaction, were the groundwater flow from the
11 dismantling of the yard. My concerns were answered
12 to my satisfaction. I don't believe there will be a
13 threat to the Town of Ayer.

14 I would like to thank the office for
15 assisting me today with my concerns.

16 MR. CHAMBERS: You're welcome.

17 (Pause)

18 MR. CHAMBERS: There being no further
19 comments, I hereby close the public hearing for
20 AOC's 32 and 43A. Thank you all for coming.

21 (Whereupon the proceedings
22 were adjourned at 7:35 p.m.)
23
24

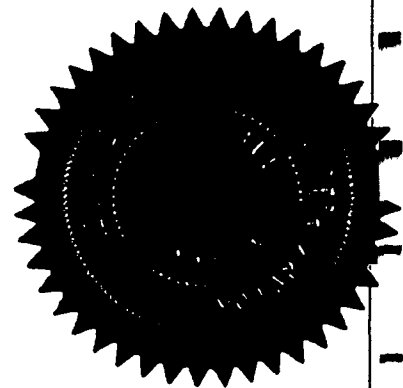
C E R T I F I C A T E

I, KEN A. DiFRAIA, Certified Shorthand Reporter, do hereby certify that the foregoing transcript, Volume I, is a true and accurate transcription of my stenographic notes taken on July 17, 1997.

Ken A. DiFraia 7/24/97

Ken A. DiFraia

Certified Shorthand Reporter



RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

RECORD OF DECISION					
Reviewed By:	Page:	Line:	Section:	Comment:	Comment Response:
James Byrne EPA New England May 9, 1997	-	-	-	Please change the name of the "Intrinsic Remediation" alternative to "Monitored Natural Attenuation". Please use the following definition when describing monitored natural attenuation: "Monitored natural attenuation is the combination of physical, chemical, and biological processes that act without human intervention to reduce the mass, toxicity, mobility, volume or concentration of contaminants in soil or groundwater in a reasonable time frame. These in-situ processes include biodegradation, dispersion, dilution, adsorption, volatilization, and biological and chemical stabilization or destruction of contaminants."	The term "Intrinsic Remediation" has been replaced in the ROD by "Monitored Natural Attenuation." The ROD offers the following explanation for the name change; "This ROD will use the more descriptive name "monitored natural attenuation" in place of "Intrinsic remediation." The terms are synonymous.
	-	-	-	<p>ARARs Tables: a: Please see the ARARs tables in the October 1996 ROD for AOCs 43G & J for the correct ARARs for the groundwater alternative and title accordingly. Additionally, in the header at the top of the page please state what type of ARARs they are (i.e., action specific, etc.) The 43G & J Tables should be very similar, if not the same.</p> <p>b. Please note the SDWA is both an action- and chemical specific ARAR in this case. Additionally, in your "Action to be taken to attain requirement" section of the Table for both MCL and MMCLs, please state that they will be met by this alternative as well as being used to evaluate performance.</p> <p>c. Please add an ARARs table for Alternative A6 with an appropriate title, please see that handwritten attachment for details.</p>	<p>a & c. The ARAR tables from AOC 43G & 43J ROD will be added and modified as appropriate.</p> <p>b. Requested clarification will be incorporated.</p>

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

RECORD OF DECISION					
Reviewed By:	Page:	Line:	Section:	Comment:	Comment Response:
	-	-	-	Alternative A6. Was on-site use of the soil as part of the landfill remediation project considered? Are we confident that the soils excavated will be non-hazardous? Please add a contingency for hazardous oil disposal.	Yes. On-site re-use of the excavated soils is currently being considered as part of the landfill remediation project. If, based on waste characterization, the excavated soils meet the requirements for "Reuse and Disposal of Contaminated Soils at Landfills" Department of Environmental Protection, Bureau of Waste Prevention, Interim Policy #BWP-94-037, then the soils would likely be re-used as daily cover material during the construction of the new landfill cell.
	-	-	-	Alternative B3. Please discuss approximately how long you expect natural attenuation to take as compared to more active remediation.	No estimated have been made regarding the length of time required to remediate the site via Monitored Natural Attenuation or more active alternatives. This information will be developed as part of the Monitored Natural Attenuation Assessment.
John Regan MADEP April 17, 1997	ii	Para 1	1 st bullet	Note that all excavated soil will be disposed of off-post and that confirmatory sampling will be conducted prior to backfill	The following text has been added: "Perform confirmatory sampling prior to backfilling."
	ii	Para 1	4 th bullet	Note groundwater will be monitored on an annual basis and site reviews will be conducted every five years for thirty years or until groundwater contamination is reduced to acceptable concentrations.	The section being commented upon is intended to be a summary of the major components of the selected remedy. Details on the selected remedy are provided in Section X of the ROD. No changes will be made to the existing text. The Army may request a reduction in the frequency of groundwater monitoring if warranted by site conditions. Annual monitoring will be required unless EPA and MADEP agree to a reduced frequency.
	ii	Para 3	5 th bullet	Note that long term monitoring will be conducted on an annual basis.	See response to previous comment.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

RECORD OF DECISION					
Reviewed By:	Page:	Line:	Section:	Comment:	Comment Response:
	ii	Para 3	7 th bullet	Note groundwater will be monitored on an annual basis and site reviews will be conducted every five years for thirty years or until groundwater contamination is reduced to acceptable concentrations.	The text was modified.
	7	Para 1	V.b.1.a	The description of DRMO Yard soils should state that site soils also contained PCBs in excess of state standards	The following text was added: "PCBs were detected in site soils at concentrations in excess of state standards."
	21	Para 5	VII	The detailed analysis of remedial alternatives presented in the Functional Area II Feasibility Study specifies that long term monitoring will be conducted in conjunction with IR. This should be reflected in the ROD. Please add "with long term monitoring" to the bullet describing IR.	This section being commented on is intended to be a summary, the details for the alternatives are provided in later sections of the ROD. No change to text.
	38	Para 3	X.B	Groundwater cleanup goals should include meeting VPH/EPH standards. This section must include language regarding development of performance standards for VPH/EPH which will be based upon risk based numbers developed during the IR assessment or Method 1 Standards. The IR assessment shall include a trend analyses to predict future petroleum contaminant migration and concentration estimates.	The following text was added at the end of Section X.B. "Risk based clean-up goals will be established for EPH/VPH during the Monitored Natural Attenuation Assessment." It is anticipated that a trend analysis will be a component of the Monitored Natural Attenuation Assessment.
	41	Para 2	X.C.2	Please note that the Army will follow the "Technical Protocol for Implementing Intrinsic Remediation with Long-Term Monitoring for Natural Attenuation of Fuel contamination Dissolved in Groundwater". This document was co-developed by the USEPA and the US Air Force Center for Environmental Excellence and published November 11, 1995.	The desired modification was made.
	41	Para 3	X.C.2	The MADEP recommends that the discussion on institutional controls include restrictions on the use of groundwater, depth of excavation and risk management for any future use.	The specific language for the institutional controls will be developed as part of the property transfer documentation. All regulatory agencies will be provided the opportunity to review and comment on the language at that time.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

RECORD OF DECISION					
Reviewed By:	Page:	Line:	Section:	Comment:	Comment Response:
	42	Para 1	X.C.2	The technical discussion of biological degradation of hydrocarbons should be expanded to note the differences between aerobic and anaerobic biodegradation. This discussion should include a description of respective electron acceptors for each condition and discussion regarding the decrease in oxidation-reduction potential for aerobic conditions as progression of electron acceptor use occurs. Note that in anaerobic degradation, the presence of reduced forms of inorganics can be used as an indicator that biological activity is occurring and inorganic speciation can be used to model anaerobic degradation.	The selected remedy performance criteria and details will be provided as part of the required Monitored Natural Attenuation Assessment. No change to text.
	42	Para 2	X.C.2	Please note that final monitoring well locations will be submitted for regulatory review and concurrence.	The following text was added after the 2 nd sentence: "A Long Term Monitoring Plan shall be developed as part of the Monitored Natural Attenuation Assessment and shall undergo regulatory review."

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

RECORD OF DECISION					
Reviewed By:	Page:	Line:	Section:	Comment:	Comment Response:
	42	Para 3	X.C.2	<p>Please specify that relevant chemicals of potential concern (CPC) will include total petroleum hydrocarbons (TPHC) as evaluated using the MADEP's volatile petroleum hydrocarbon (VPH) and extractable petroleum hydrocarbon (EPH) methods.</p> <p>Please note that an intrinsic bioremediation assessment will be conducted. A work plan should be prepared detailing the proposed activities of the assessment and submitted to the regulatory agencies for review prior to implementation. The additional data collection will consist of additional rounds of groundwater sampling and analysis to refine estimates of IR effectiveness. Collected data should include groundwater elevation, intrinsic bioremediation indicators and CPCs. The CPCs should be listed in the ROD and TPHC include analysis using the MADEP's VPH/EPH method. CPC concentration data will be used in the estimation of site specific degradation rates and the effectiveness of IR in achieving groundwater cleanup levels.</p> <p>The ROD should state that the Intrinsic Bioremediation Work plan will contain procedures for evaluation of CPCs and TPHC (using VPH/EPH) and that criteria for contaminant evaluations will use risk based concentrations, MCLs and/or MMCLs. Data collected from the intrinsic bioremediation assessment groundwater sampling program must be incorporated into the fate and transport modeling specified in this paragraph.</p>	<p>Part 1. The 3rd sentence has been revised to read: "Data collected would include groundwater elevation, intrinsic remediation indicators, and relevant COPCs, including TPHC by MADEP Methods for extractable petroleum hydrocarbon (EPH) and volatile petroleum hydrocarbons (VPH).</p> <p>Part 2. The 2nd sentence has been revised to read: "Data collection may consist of installing additional monitoring wells and performing additional rounds of groundwater sampling and analysis to refine estimates of intrinsic remediation effectiveness in protecting downgradient receptors. The following text has been added after the second sentence: "A Monitored Natural Attenuation Assessment Work Plan will be developed by the Army and provided for regulatory review." The 3rd sentence has been revised to read: "Data collected would include groundwater elevation, intrinsic remediation indicators, and relevant COPCs, including TPHC by MADEP Methods for extractable petroleum hydrocarbon (EPH) and volatile petroleum hydrocarbon (VPH)." </p> <p>Part 3. The last sentence has been revised to read: "Relevant COPC concentration data, including VPH/EPH via MADEP Method will directly assist..."</p>

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

RECORD OF DECISION					
Reviewed By:	Page:	Line:	Section:	Comment:	Comment Response:
	42	Para 4	X.C.2	Please detail the analytical parameters likely to be included in the monitoring program either in this paragraph or as a separate appendix. Please note that groundwater monitoring will be conducted for thirty years. Additionally, the final Long Term Groundwater Monitoring Plan shall include performance standards that will determine the effectiveness of the remedial action,. The final plan would be developed in conjunction with regulatory review and comment.	Likely analytical parameters for the Monitored Natural Attenuation Assessment are provided in table 18, appendix E. The last sentence has been revised to read: "Groundwater monitoring will be conducted annually for 30 years or until groundwater contamination has been reduced to acceptable levels." The following text has been added to the end of the paragraph: "The Army may request a reduction in the frequency of groundwater monitoring if warranted by site conditions. Annual monitoring will be required unless EPA and MADEP agree to a reduced frequency. A Long Term Monitoring Plan will be developed by the Army and provided for regulatory review."
	43	Para 1	X.C.2	The ROD must note that if at any time during the implementation of the remedy, there are indications that site groundwater contaminants are increasing or spreading, than more aggressive remedial action will be taken to enhance he intrinsic bioremediation alternative.	Paragraph 6 on page 42 provides language that requires that assessment of the effectiveness of the selected remedy every five years. If the selected remedy does not continue to be protective of human health and the environment, the Army will evaluate and implement other measures to ensure the appropriate level of protection.
	8-44	-	Table 1-10	Please include VPH/EPH in table for DRMO Yard.	The parameter has been added.
	8-30	-	Table 8-6	Please include VPH/EPH in table for POL Yard.	The parameter has been added.
Bob Burkhardt	-	-	-	<p>No mention is made of the possibility of the two groundwater OUs contaminating adjacent groundwater via plumes. Are there investigatory findings which justify this conclusion? If so, could you briefly summarize them.</p> <p>What is your best guess about where the soil will be disposed of off-site, and the situation and conditions it will be contained in?</p>	<p>The groundwater modeling performed as part of the remedial investigation examined the possibility of ground water contaminant migration. The results are presented in the RI and were taken into consideration when preparing the FS and this ROD.</p> <p>It is not yet possible to identify possible disposal locations.</p>

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

RECORD OF DECISION					
Reviewed By:	Page:	Line:	Section:	Comment:	Comment Response:
James Byrne, USEPA New England November 7, 1997	-	-	-	Overall, this Record Of Decision (ROD) should be structured in a similar fashion to that of AOCs 43G & J in that we are dealing with similar issues and remedies.	The specific EPA comments provided below will be responded to in a manner consistent with the 43G and J ROD. Language will be taken from the 43G and J ROD and modified to address the site specific requirements of the AOC 32 and 43A sites.
-	-	-	-	<p>The Remedy: a. Cleanup levels for the contaminants of concern (COCs) need to specifically called out in the ROD. b. An estimated time frame for meeting these cleanup levels should also be discussed. c. Provisions for the evaluation and implementation of "contingency remedy" (i.e. more aggressive action) needs to be added to the remedy. d. The concept of a point of compliance needs to be discussed for the monitored natural attenuation portion of the remedy. It should say that one will be established based on cleanup goals and that it will allow us enough time to evaluate the need and implementation of a more aggressive remedy before either human health or the environment are threatened.</p>	<p>a. ROD Sections X.A. <i>Surface Soil Cleanup Levels (Defense Reutilization and Marketing Office Yard Soils Operable Unit - Area of Contamination 32 and X.B. Groundwater Cleanup Levels</i> provide the methodology for selection of the soil and groundwater cleanup levels for the sites. Tables delineating the contaminants of concern (COCs) and the cleanup levels agreed upon in the Final Feasibility Study will be provided in the Final ROD. Tables 21 and 22 present the Main Post Soil and Groundwater Cleanup Goal Determinations, respectively. Cleanup goals for MADEP EPH/VPH will be established as part of the Natural Attenuation Assessment Work Plan.</p> <p>b. No detailed evaluation has been done to predict the time frame for meeting the cleanup levels. The Army proposes that if the sites cannot be remediated via Natural Attenuation within 30 years that other alternatives will be evaluated. This information will be added to the Final ROD.</p> <p>c. Provisions for evaluation and potential implementation of other alternatives if Monitored Natural Attenuation proves to be ineffective will be added to the Final ROD.</p> <p>d. The point of compliance for these sites shall be the currently established groundwater Zone II boundary. Monitoring points shall be established at areas sufficiently inside the boundary to provide adequate time to evaluate the need for more aggressive actions to protect human health and the environment. Specific details will be provided in the Natural Attenuation Assessment Work Plan to be submitted after ROD finalization.</p>

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

RECORD OF DECISION					
Reviewed By:	Page:	Line:	Section:	Comment:	Comment Response:
-	-	-	-	In addition to 5-year reviews, EPA requests that annual groundwater monitoring reports be added to the remedy	Annual groundwater monitoring reports are currently included as part of the remedy. See ROD sections X.C.2 and X.C.3. Each of the referenced sections contain a paragraph titled <i>Monitor Groundwater Over the Longterm and Annually Report on Groundwater Quality</i> which describes annual reporting requirements.
-	-	-	-	ARARs: We expected that the ARARs would follow those of 43 G and J, but we find that they differ. a. Specifically, 43 G and J include RCRA Subtitle C, Subpart F as "Relevant and Appropriate" establishing a groundwater protection standard as an action specific ARAR. The present ROD does not include this ARAR. Please include or justify why it is not included. d. The last two pages of Table 23 include TBC ARARs that do not appear in 43 G and J. Please delete or justify their inclusion. Additionally, the first Chemical specific entry for TSCA needs to have a "status" (e.g. applicable or relevant and appropriate) identified. e. The two entries under "Action Specific" should also be eliminated. A reference in the text that states "If hazardous waste is found, RCRA Subtitle C will apply, and the waste will be properly disposed" should be included. Perhaps p. 25 would be a good place for this entry.	a) The indicated ARA has been added. d) The ARARs in the AOC 43G and 43J ROD pertain to groundwater and treatment residues. Soil will be excavated as part of the remedial action at AOC 32. The ARARs included are those listed in the January 1997 feasibility study for this site. These ARARs and TBC can be found on Table 5-14 of the feasibility study. e) The action specific ARARs have been eliminated. The following sentence was added to the text on page 39 "If hazardous waste is found, RCRA Subtitle C will apply, and the waste will be properly disposed."
-	12	34	-	"May be site related PCBs" is not a correct statement. There are site related PCBs.	The indicated change was made.
-	14	20	-	PCBs "could be of concern." PCBs are of concern.	The indicated change was made.

RECORD OF DECISION
Areas of Contamination 32 and 43A
Devens, Massachusetts

RECORD OF DECISION					
Reviewed By:	Page:	Line:	Section:	Comment:	Comment Response:
	28	-	Institutional controls	How would be they instituted? How long would they be in place? Who would enforce them? Deed restrictions can only be created if a property interest is transferred. If the property is sold, then who would enforce them? How can deed restrictions be attached if the property is not sold? Please clarify.	The Army will maintain control of the property associated with AOCs 32 and 43A until such time that the remedy is deemed to be operating successfully. While the Army maintains ownership of the property the Army will be responsible for ensuring that drinking water wells are no installed in an area that would be impacted by the AOCs. When the property is transferred the restriction would be written into the deed for the property and the new property owner is responsible for enforcing the deed restrictions. The deed restriction would be required until such time that the site is determined to meet the appropriate groundwater cleanup goals.
John Salvatore MADEP November 6, 1997	2	-	-	<p>However, in the source area at Underground Storage Tank #13, Groundwater Operable Unit AOC 32, contaminants of potential concern, 1, 2-1, 3-, and 1,4 dichlorobenzene; Aroclor 1260; DDT; 1,2-dichloroethylene (DCE); and TCE, exceeded Federal and State drinking water standards in the groundwater. Benzene was detected just below the MCL of (5) parts per billion in groundwater. The (2) existing shallow cored bedrock monitoring wells do not provide adequate hydraulic yield for well purging and sampling of these contaminants.</p> <p>MADEP recommends that the (3) shallow monitoring wells proposed for the Underground Storage Tank #13 Groundwater Operable Unit AOC 32, be substituted with (3) rotary drilled monitoring wells installed into consolidated bedrock. The monitoring wells should be installed to a depth to provide a sustainable groundwater yield for sampling.</p>	Additional bedrock monitoring wells are currently planned for the UST # 13 Area. Specific details for the installation of the additional monitoring wells will be provided in the Natural Attenuation Assessment Work Plan.

This page intentionally left blank.